DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE

UC Berkeley Innovation Zone

State Clearinghouse No. 2023100861

Prepared for:

Berkeley
UNIVERSITY OF CALIFORNIA

February 9, 2024

DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE

UC Berkeley Innovation Zone

State Clearinghouse No. 2023100861

Prepared for:

Berkeley
UNIVERSITY OF CALIFORNIA

University of California, Berkeley
Physical and Environmental Planning
200 Architects & Engineers Building
Berkeley, California 94720

Contact:

Raphael Breines
Senior Planner
planning@berkeley.edu

Prepared by:

ASCENT

Ascent

2054 University Ave, Suite 400
Berkeley, CA 94704

Contact:

Greta Brownlow
Project Manager
greta.brownlow@ascent.inc

February 9, 2024

18010202.02

TABLE OF CONTENTS

Section Page

EXECUTIVE SUMMARY ES-1
ES.1 Introduction ES-1
ES.2 Project summary ES-1
ES.3 Environmental Impacts and Mitigation Measures ES-2
ES.4 Summary of Alternatives Evaluated ES-2
ES.5 Areas of Controversy ES-3
ES.6 Issues to be Resolved ES-4
ES.7 Intended Uses of this EIR ES-4

1 INTRODUCTION 1-1
1.1 Project Overview 1-2
1.2 EIR Scope 1-2
1.3 Environmental Review and Approval Process 1-3
1.4 Organization of This EIR 1-5

2 PROJECT DESCRIPTION 2-1
2.1 Project Overview 2-1
2.2 Project Location 2-1
2.3 General Plan Land Use and Zoning Designation 2-2
2.4 Existing Conditions 2-2
2.5 Project Objectives 2-9
2.6 Project Elements 2-10
2.7 Project Construction 2-21
2.8 Continuing Best Practices 2-21
2.9 Required Permits and Approval 2-29

3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES 3-1
3.1 Aesthetics 3.1-1
3.2 Air Quality 3.2-1
3.3 Biological Resources 3.3-1
3.4 Archaeological, Historical, and Tribal Cultural Resources 3.4-1
3.5 Energy 3.5-1
3.6 Geology and Soils 3.6-1
3.7 Greenhouse Gas Emissions and Climate Change 3.7-1
3.8 Hazards and Hazardous Materials 3.8-1
3.9 Hydrology and Water Quality 3.9-1
3.10 Land Use and Planning 3.10-1
3.11 Noise and Vibration 3.11-1
3.12 Population and Housing 3.12-1
3.13 Public Services and Recreation 3.13-1
3.14 Transportation 3.14-1
3.15 Utilities and Service Systems 3.15-1
3.16 Wildfire 3.16-1

4 CUMULATIVE IMPACTS 4-1
4.1 Cumulative Impacts Overview 4-1
4.2 State CEQA Guidelines Requirements 4-1
4.3 Related Projects and Plans 4-1
4.4 Cumulative Impact Analysis 4-5

5 OTHER CEQA CONSIDERATIONS 5-1
5.1 Significant and Unavoidable Impacts 5-1
5.2 Significant Irreversible Environmental Changes 5-1
5.3 Growth Inducing Effects 5-2

6 ALTERNATIVES 6-1
6.1 CEQA Requirements for Alternatives 6-1
6.2 Alternatives Considered and Eliminated from Detailed Analysis 6-4
6.3 Alternatives Evaluated in this EIR 6-7
6.4 Summary Comparison of Alternatives 6-26
6.5 Environmentally Superior Alternative 6-30

7 LIST OF PREPARERS 7-1

8 REFERENCES 8-1

9 LIST OF ABBREVIATIONS 9-1

Appendices

A Notice of Preparation and Scoping Comments Received
B UC Berkeley Continuing Best Practices
C Air Quality, Energy, and Greenhouse Gas Emissions Modeling Outputs and Health Risk Assessment
D Special-Status Plants and Wildlife Species Tables
E Historic Resources Evaluation and AB 52 Consultation Letters
F Project-Specific Geotechnical Investigation
G Phase I Environmental Site Assessment
H Noise Modeling Outputs
I Traffic Demand Modeling Outputs
J Pedestrian Wind Hazards Study

Figures

Figure 2-1 Regional Location 2-3
Figure 2-2 Priority Development Area and Transit Priority Area Zones in the City of Berkeley 2-5
Figure 2-3 Existing Site Plan 2-7
Figure 2-4 Proposed Site Plan 2-11
Figure 2-5 Building Elevation at Oxford Street 2-15
Figure 2-6 Proposed Circulation 2-17
Figure 3.4-1 Shattuck Avenue Downtown Historic District 3.4-11
Figure 3.11-1 Noise-Sensitive Receptors 3.11-10
Figure 3.16-1 Fire Hazard Severity Zone 3.16-11

Tables

Table ES-1	Summary of Impacts and Mitigation Measures	ES-5
Table 3.2-1	National and California Ambient Air Quality Standards	3.2-2
Table 3.2-2	Sources and Health Effects of Criteria Air Pollutants	3.2-8
Table 3.2-3	Attainment Status Designations for the San Francisco Bay Area Air Basin	3.2-9
Table 3.2-4	Bay Area Air Quality Management District Thresholds	3.2-15
Table 3.2-5	Project Consistency with Applicable Control Strategies of 2017 Clean Air Plan	3.2-16
Table 3.2-6	Estimated Construction Emissions (Average Daily)	3.2-18
Table 3.2-7	Estimated Operational Emissions (Average Daily)	3.2-19
Table 3.2-8	Construction Health Risk	3.2-21
Table 3.2-9	Operational Health Risk	3.2-21
Table 3.2-10	Cumulative Health Risk	3.2-22
Table 3.4-1	AB 52 Consultation	3.4-12
Table 3.5-1	UC Berkeley 2020 Sustainability Plan Goals	3.5-7
Table 3.5-2	Construction Energy Consumption by Source	3.5-12
Table 3.5-3	Operation-Related Building Energy Consumption (2028)	3.5-12
Table 3.6-1	Approximate Distances and Directions from the Project Site to Bay Area Active Faults	3.6-4
Table 3.6-2	San Francisco Earthquake Forecast	3.6-5
Table 3.6-3	Hayward Fault Earthquake Forecast	3.6-5
Table 3.7-1	UC Sustainability Goals and UC Berkeley 2020 Sustainability Plan Goals	3.7-5
Table 3.7-2	UC Berkeley Greenhouse Gas Inventories	3.7-12
Table 3.7-3	Construction-Related GHG Emissions by Project Phase	3.7-16
Table 3.7-4	Operation-Related GHG Emissions by Sector	3.7-16
Table 3.9-1	Construction Best Management Practices	3.9-9
Table 3.11-1	Typical A-Weighted Noise Levels	3.11-2
Table 3.11-2	Ground-Borne Vibration Impact Criteria for General Assessment for Human Response	3.11-4
Table 3.11-3	FTA Construction Damage Vibration Criteria	3.11-5
Table 3.11-4	Exterior Noise Standards for Residential Land Uses, dBA	3.11-7
Table 3.11-5	Maximum Sound Levels for Nonscheduled, Intermittent, Short-Term Operation of Mobile Equipment at Residential Land Uses	3.11-7
Table 3.11-6	Maximum Sound Levels for Repetitively Scheduled and Relatively Long-Term Operation of Stationary Equipment at Residential Land Uses	3.11-8
Table 3.11-7	Sensitive Receptors Near the Project Site	3.11-8
Table 3.11-8	Summary of Existing (2020) Traffic Noise Levels	3.11-9
Table 3.11-9	Typical Construction Equipment Noise Emission Levels	3.11-13
Table 3.11-10	Noise Exposure at Off-Site Noise-Sensitive Receptors from Typical Construction Activity	3.11-14
Table 3.11-11	Noise Exposure at Off-Site Noise-Sensitive Receptors from Typical Construction Activity	3.11-14
Table 3.11-12	FTA Reference Vibration Levels for Construction Equipment	3.11-17
Table 3.11-13	Vibration Damage Levels at Nearby Buildings	3.11-18
Table 3.11-14	Vibration Damage Levels at Historical Buildings	3.11-19
Table 3.11-15	Vibration Annoyance Levels	3.11-19
Table 3.11-16	Summary of Modeled Traffic Noise Levels	3.11-22

Table 3.12-1	Current Campus Population and 2021 LRDP Population Projections	3.12-3
Table 3.12 2	Employment in Alameda County (2015-2050)	3.12-3
Table 3.12 3	Housing in Alameda County (2010 to 2023)	3.12-4
Table 3.12 4	Existing UC Berkeley Housing	3.12-4
Table 3.13-1	Berkeley Unified School District Enrollment Data	3.13-11
Table 3.14-1	Existing UC Berkeley Transportation Demand Management Program Elements	3.14-10
Table 3.14-2	Existing UC Berkeley Population Commute Mode Shares	3.14-11
Table 3.14-3	Project Compliance with Applicable Transportation-Related Plans, Ordinance, and Policies	3.14-15
Table 3.14-4	Project Travel Demand Estimate	3.14-18
Table 3.15-1	Utilities Providers for the Project Vicinity	3.15-1
Table 3.15-2	East Bay Municipal Utility District Supply and Demand Assessment, 2020-2050	3.15-7
Table 3.15-3	Material Streams Disposal Destinations	3.15-28
Table 4-1	Cumulative Projects	4-2
Table 4-2	Predicted Increases in Traffic Noise Levels	4-13
Table 6-1	Summary of Environmental Impacts of the Alternatives Relative to the Project	6-26

EXECUTIVE SUMMARY

This summary is provided in accordance with California Environmental Quality Act Guidelines (State CEQA Guidelines) Section 15123. As stated in Section 15123(a), "an EIR [environmental impact report] shall contain a brief summary of the proposed action and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the State CEQA Guidelines, this chapter includes: 1) a summary description of University of California, Berkeley (UC Berkeley) Innovation Zone Project (project), 2) a synopsis of environmental impacts and recommended mitigation measures (Table ES-1), 3) identification of the alternatives evaluated and of the environmentally superior alternative, and 4) a discussion of the areas of controversy associated with the project.

ES.1 INTRODUCTION

UC Berkeley is part of the University of California (UC) system, a constitutionally created entity of the State of California with "full powers of organization and government" (California Constitution Article IX, Section 9). As a constitutionally created State entity, UC is not subject to the regulations of local agencies, such as those that may be found in the City of Berkeley General Plan or land use ordinances, whenever using property owned or controlled by UC in furtherance of UC's educational purposes.

This Draft EIR addresses the environmental effects associated with adoption and implementation of the project. CEQA requires that public agencies, prior to taking action on projects over which they have discretionary approval authority, consider the environmental consequences of such projects. An EIR is a public document designed to provide lead agencies, other local and state governmental agency decision-makers, and the public with an analysis of potential environmental consequences of a proposed project to support informed decision-making.

This environmental impact report (EIR) has been prepared pursuant to the requirements of CEQA and the State CEQA Guidelines to determine if approval of the identified discretionary actions could have a significant impact on the environment. The Board of Regents of the University of California (the Regents), as the lead agency, has reviewed and revised as necessary all submitted drafts, technical studies, and reports to reflect its own independent judgment, including reliance on applicable UC Berkeley technical personnel. Information for this Draft EIR was obtained from on-site field observations; review of available studies, reports, data, and similar literature in the public domain; and specialized environmental assessments.

ES.2 PROJECT SUMMARY

The project would be located in the City of Berkeley on a site immediately west of the UC Berkeley Campus Park. The project site currently comprises the UC Berkeley's University Hall and its Annex (referred to collectively throughout the document as University Hall), the university parking lot immediately to the west of University Hall, and two UC-owned commercial buildings located at 2136-2140 University Avenue (Ernest A. Heron Building) and 2154-2160 University Avenue (Martha E. Sell Building), which are city-designated landmarks.

The project would demolish all existing structures and redevelop the project site with two laboratory buildings with vehicle parking. The two buildings, referred to as the South Building and the North Building, would include space for academic research in the field of materials science, offices, and other collaborative meeting spaces. Researchers, faculty, and students from across multiple disciplines would be users of the buildings. The project would not result in UC Berkeley student population growth but would result in an increase in employment on the project site.

The South Building would provide an approximately 176,000-gross-square-foot new laboratory building that includes five above-ground floors, a non-occupied mechanical space at the roof, and a below-grade basement. The building would include wet and dry laboratory research and laboratory support space, research and administrative offices, meeting rooms and conference space, shared administrative support space and research space for other users. The South Building would provide space for permanent occupancy of up to 340 people. The North Building would provide an approximately 310,000-gross-square-foot building with 11 above-ground floors, a non-occupied mechanical space at the roof, and a below-ground basement. The North building would include space for laboratory and office uses, as well as a parking garage with up to 350 spaces. This building would also include roughly 5,000 gross square feet of ground-floor commercial space. The North Building would provide space for permanent occupancy of up to 750 people.

A linear-shaped courtyard, approximately 40-foot-wide by 200-foot-long, would be located between the South and North Buildings. In addition, streetscape features, including trees, bicycle racks, and trash receptacles, would be installed along the northern, eastern, and southern sides of the site perimeter and sidewalks. Landscaping would include native and/or climate adaptive and drought-resistant plant materials.

ES.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This EIR has been prepared to evaluate the physical environmental effects of the project. Table ES-1, presented at the end of this Executive Summary, provides a summary of environmental impacts potentially resulting from implementation of the project. The table also identifies the level of significance of each impact before mitigation, mitigation measures proposed to reduce impacts, if any, and the level of significance of the impact after implementation of the mitigation measures for the project.

ES.4 SUMMARY OF ALTERNATIVES EVALUATED

Organizations and individuals provided suggestions for alternatives during interagency consultation and review of the notice of preparation (NOP). Alternatives were evaluated for consideration in the EIR if they were determined to: 1) accomplish all or most of the basic project objectives, 2) be potentially feasible (from economic, legal, regulatory, and technological standpoints), and 3) avoid or substantially lessen any significant effects of the project. Alternatives that meet these evaluation criteria are evaluated in the EIR and are listed below. Additionally, the No Project Alternative was evaluated, as required by CEQA. The following alternatives were analyzed in this EIR.

- No Project Alternative assumes the project site would remain as is under existing conditions. University Hall has a seismic performance rating of VI (Priority for Improvement), which means that during a major seismic disturbance it is anticipated to result in extensive structural and non-structural damage. Because the building was determined to be seismically unsafe, it was vacated in Summer 2023 and is currently boarded and unoccupied. Under the No Project Alternative, University Hall would be boarded and secured in its current condition until a future use is identified. The commercial properties—2136-2140 University Avenue (Ernest A. Heron Building) and 2154-2160 University Avenue (Martha E. Sell Building)—would be retained onsite and would continue to operate in a manner similar to existing conditions.
- Alternative A: Off-site Alternative would result in the development of two laboratory buildings, a landscaped courtyard, a parking garage, supporting utilities, and circulation improvements at an alternative location to the project site.
- Alternative B: Reduced Footprint Alternative would result in the development of two laboratory buildings, a landscaped courtyard, a parking garage, supporting utilities, and circulation improvements. Under this alternative, the South Building would be the same dimensions and size as proposed under the project as described in Section 2.6.1, "Laboratory Buildings." The total square footage and building footprint of the North Building would be reduced by half compared to the project, for a gross square footage of 155,000 square feet. By occupying a smaller footprint, this alternative would avoid demolition of the two UC-owned commercial buildings located at 2136-2140 University Avenue (Ernest A. Heron Building) and 2154-2160 University Avenue (Martha E. Sell Building), which are historical resources under CEQA.

ES.4.1 Environmentally Superior Alternative

State CEQA Guidelines Section 15126.6(e)(2) states that when the No Project Alternative is identified as the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives. As discussed in Chapter 6, "Alternatives," the No Project Alternative is environmentally superior for all environmental resource areas. As a result, this EIR must identify an alternative among the other alternatives that is environmentally superior. Based on the environmental analysis contained in this Draft EIR, the environmentally superior alternative would be Alternative B.

In addition to the No Project Alternative, Chapter 6 includes detailed discussion of Alternative A: Off-Site Alternative and Alternative B: Reduced Footprint Alternatives. Alternative A: Off-Site Alternative would avoid the significant and unavoidable impact of the project on historical resources because it would avoid demolition of two historical resources. However, the Off-Site Alternative would result in greater impacts than the project and the Reduced Footprint Alternative related to air quality, energy, and greenhouse gas (GHG) emissions because of the larger scale of demolition activities. The Off-Site Alternative would avoid the significant impact to historic resources; however, it would increase other impacts. As such, it would not be the environmentally superior alternative of the three alternatives evaluated.

Alternative B: Reduced Footprint Alternative would avoid the significant and unavoidable impact of the project on historical resources. In addition, impacts related to air quality, energy, GHG emissions and climate change, hazards and hazardous materials (emergency response and evacuation), population and housing, public services and recreation, transportation, utilities and service systems, and wildfire (emergency response) would be less under the Reduced Footprint Alternative because the building footprint is smaller and the net increase in employees would be smaller than that of the project. Because overall impacts would be less under the Reduced Footprint Alternative, this alternative would be the environmentally superior alternative.

Although the Reduced Footprint Alternative is the environmentally superior alternative, this alternative is less desirable because it would be less effective at meeting the basic project objectives, as described in Section 2.5, "Basic Project Objectives." The Reduced Footprint Alternative would reduce the area that could be used for research and office space by almost 50 percent when compared to the area that would be available under the project. The Reduced Footprint Alternative would not provide the needed 450,000 gross square feet of research and laboratory space and would not maximize the capacity of the existing project site. Consequently, the Reduced Footprint Alternative would not address UC Berkeley's critical programmatic needs.

ES.5 AREAS OF CONTROVERSY

UC Berkeley issued an NOP on October 30, 2023. The CEQA-mandated scoping period for this EIR was between October 30, 2023, and November 29, 2023, during which interested agencies and the public could submit comments about the potential environmental impacts of the project. During this time, UC Berkeley received 10 written comment letters and one oral comment from a variety of state and local agencies, as well as organizations and members of the public. A copy of each letter is included in Appendix A, "Notice of Preparation and Scoping Comments," of this Draft EIR.

The following lists issues that are likely to be of particular concern to agencies and interested members of the public during the environmental review process. Every concern applicable to the CEQA process is addressed in this EIR, so this list is not necessarily exhaustive; rather, it attempts to capture concerns that are likely to generate the greatest interest based on the input received during the scoping process.

- Whether the project would create new housing demand;
- Project impacts related to removal of existing City of Berkeley Landmarks;
- Project impacts related to hazardous materials use; and
- Project impacts to utilities services, including water and wastewater.

All of the substantive environmental issues raised in the NOP comment letters and at the Scoping Meeting have been addressed or otherwise considered during preparation of this Draft EIR.

ES.6 ISSUES TO BE RESOLVED

CEQA Guidelines Section 15123(b)(3) requires that an EIR identify issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the project, the major issues to be resolved include decisions by the Regents, as lead agency, related to:

- Whether this EIR adequately describes the environmental impacts of the project.
- Whether the benefits of the project override environmental impacts, if any, that cannot be feasibly avoided or mitigated to a level of insignificance.
- Whether the identified continuing best practices (CBPs) and/or mitigation measures should be approved or modified.
- Whether there are other mitigation measures that should be applied to the project besides those CBPs and/or mitigation measures identified in the EIR.
- Whether there are any alternatives to the project that would substantially lessen any of the significant impacts of the project and achieve most of the basic project objectives.

ES.7 INTENDED USES OF THIS EIR

According to the State CEQA Guidelines (Section 15064[f][1]), preparation of an EIR is required whenever a project may result in a significant environmental impact. An EIR is an informational document used to inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

Upon certification of this EIR by the Regents, UC Berkeley intends to implement the project described above. Accordingly, this EIR presents an environmental analysis of the project to facilitate review by the Regents in its decision-making process.

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Aesthetics			
Impact 3.1-1: Result in Conflict with Applicable Zoning and Other Regulations Governing Scenic Quality UC Berkeley is the only agency with land use jurisdiction over projects proposed on UC Berkeley property, including the project. The project would undergo UC Berkeley design review for consistency with UC Berkeley's policies governing scenic quality. In addition, the project would implement UC Berkeley CBPs AES-1, AES-2, and AES-4 to ensure that the project would conform to the UC Berkeley Physical Design Framework and Campus Design Standards, would be reviewed by the UC Berkeley Design Committee, and would be reviewed and commented on by the City of Berkeley planning director or their designee.	Less than Significant	None	Less than Significant
Impact 3.1-2: Create a New Source of Substantial Light or Glare, Which Would Adversely Affect Day or Nighttime Views of the Area Implementation of the project would increase the amount of light at nighttime because the project would be operational 24 hours a day for 7 days a week. The project would be required to comply with California Building Code standards and UC Berkeley's Campus Design Standards related to light pollution and glare minimization. It also would implement CBPs AES-6 and AES-7 to minimize light spillage and prohibit the use of reflective exterior surfaces.	Less than Significant	None	Less than Significant
Air Quality			
Impact 3.2-1: Conflict With or Obstruct Implementation of Applicable Air Quality Plans The project would be consistent with the control measures identified in the 2017 Clean Air Plan. In addition, the project would not result in exceedances of Bay Area Air Quality Management District's (BAAQMD's) thresholds for criteria air pollutants and therefore would not conflict with the 2017 Clean Air Plan's goal to attain air quality standards.	Less than Significant	None	Less than Significant
Impact 3.2-2: Result in Construction and Operational Criteria Air Pollutants and Ozone Precursors Emissions Construction and operation of the project would generate criteria air pollutants and ozone precursors emissions due to the use of off-road equipment, landscaping equipment, consumer products, and traffic trips. The project would implement CBPs AIR-2 and AIR-3 to reduce fugitive dust emissions. Construction and operation activities would not result in emissions exceeding	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
the average daily thresholds established by BAAQMD for the criteria air pollutants and ozone precursors.			
Impact 3.2-3: Expose Sensitive Receptors to Substantial Taxic Air Contaminants Concentration Construction activities would result in temporary emission of taxic air contaminants (TACs), primarily diesel particulate matter (diesel PM). Operation activities would result in long-term emission of TACs from chemical uses in the new laboratories and the use of emergency backup generators. TACs emissions from the project construction and operation activities would not result in health risks exceeding the BAAQMD's thresholds for cancer, chronic hazards, and fine particulate matter ($PM_{2.5}$). However, the sum of existing sources in the project vicinity exceeds the cumulative threshold for both cancer risk and annual $PM_{2.5}$ concentrations. The project's contribution to the health conditions would be cumulatively considerable.	Significant	**Mitigation Measure 3.2-3: Clean Equipment During Construction** UC Berkeley shall use equipment that meets the EPA Tier 4 emissions standards or higher for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated to UC Berkeley that such equipment is not commercially available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 engines similar to the availability for other large-scale construction projects in the City occurring at the same time and taking into consideration factors such as (i) potential significant delays to critical-path timing of construction and (ii) geographic proximity to the project site of Tier 4 Final equipment. Where such equipment is not commercially available, as demonstrated by the construction contractor, Tier 3 equipment shall be used. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Tier 4 interim emissions standard for a similarly sized engine, as defined by CARB's regulations. The requirement to use Tier 4 interim equipment or higher for engines over 50 horsepower shall be identified in construction bids.	Less than Significant
Impact 3.2-4: Expose Sensitive Receptors to Substantial Carbon Monoxide Concentration The project would not conflict with any congestion programs. Traffic volumes at affected roadways would be expected to remain below vehicle per hour screening criteria for carbon monoxide established in the BAAQMD 2022 CEQA Guide. The project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentrations.	Less than Significant	None	Less than Significant
Impact 3.2-5: Expose Sensitive Receptors to Substantial Odorous Emissions Construction activities would result in temporary odor sources (diesel PM) that would disperse rapidly at the site. Once operational, the project may introduce new odors to the area, associated with the new laboratory buildings, academic and administrative space, and parking. The new odor sources would be similar to existing sources that operate in and around the project site. In addition, the proposed uses in the buildings are not listed as an identified odor source by BAAQMD.	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources			
Impact 3.3-1: Disturb American Peregrine Falcon, White-Tailed Kite, Other Nesting Raptors, and Other Native Nesting Birds Project implementation could result in direct or indirect disturbance to nesting American peregrine falcons, white-tailed kites, other nesting raptors, and other native nesting birds if they are present in the large trees or buildings (American peregrine falcons) adjacent to the project site. The project would implement CBP BIO-1, which requires focused surveys for nesting birds before tree removal and initial construction activities during the bird nesting season (February 1 through August 31).	Less than Significant	None	Less than Significant
Impact 3.3-2: Interfere with Bird Migration and Movement and Increase the Likelihood of Bird Strikes Project implementation would result in construction of two new buildings. The buildings would be located within the Pacific Flyway and in close proximity to the San Francisco Bay, which could result in disturbance to the typical movement and migration patterns of birds or bird strikes potentially leading to injury or death of birds.	Significant	**Mitigation Measure 3.3-2: Implement Bird-Friendly Building Design Elements to Reduce Collison Risk** Structures and buildings that are new or are taller than existing structures and buildings shall be designed to minimize the potential risk of bird collisions. This should at a minimum include the following design considerations and management strategies: (1) avoid the use of highly reflective glass as an exterior treatment, which appears to reproduce natural habitat and can be attractive to some birds; (2) limit reflectivity and prevent exterior glass from attracting birds in building plans by utilizing low-reflectivity glass and providing other non-attractive surface treatments; (3) use low-reflectivity glass or other bird safe glazing treatments for the majority of the building's glass surface, not just the lower levels; (4) for office and commercial buildings, interior light "pollution" should be reduced during evening hours through the use of a lighting control system programmed to shut off during non-work hours and between 10 p.m. and sunrise; (5) exterior lighting should be directed downward and screened to minimize illuminating the exterior of the building at night, except as needed for safety and security; (6) untreated glass skyways or walkways, freestanding glass walls, and transparent building corners should be avoided; (7) transparent glass should not be allowed at the rooflines of buildings, including in conjunction with green roofs; and (8) all roof mechanical equipment should preferably be covered by low-profile angled roofing or other treatments so that obstacles to bird flight are minimized. These strategies shall be incorporated at the direction of the Campus Architect during plan review, and the Campus Architect shall confirm the incorporation of these strategies into architectural plans prior to building construction.	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Archaeological, Historical, and Tribal Cultural Resources			
Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource The project would include the demolition of two historical resources: the Ernest A. Heron Building and the Martha E. Sell Building. These two buildings are individually listed as Berkeley Landmarks and are also contributors to the Shattuck Avenue Downtown Historic District. The project would cause a substantial adverse change in the significance of these three historical resources by removing the two Berkeley Landmarks.	Significant	**Mitigation Measure 3.4-1a: Historic American Building Survey** UC Berkeley shall have Historic American Building Survey Level II documentation completed for the Heron and Sell buildings. UC Berkeley shall submit digital copies of the documentation to an appropriate historical repository, including UC Berkeley's Bancroft Library, UC Berkeley Environmental Design Archives, or the California Historical Resources Information System Northwest Information Center. This documentation shall include a historical narrative, photographs, and/or drawings: ▸ Historical Overview: A professional meeting the Secretary of the Interior's Professional Qualification Standards in Architectural History or History shall assemble historical background information relevant to the historical resource. ▸ Photographs: Photo-documentation of the historical resource will be prepared to Historic American Building Survey standards for archival photography, prior to demolition. Historic American Building Survey standards require large-format black-and-white photography, with the original negatives having a minimum size of four inches by five inches. Digital photography, roll film, film packs, and electronic manipulation of images are not acceptable. All film prints, a minimum of four inches by five inches, must be hand-processed according to the manufacturer's specifications and printed on fiber-base, single-weight paper and dried to a full gloss finish. A minimum of 12 photographs shall be taken, detailing the site, building exterior, building interior, and character-defining features. Photographs must be identified and labeled using Historic American Building Survey standards. ▸ Drawings: Existing historic drawings of the historical resource, if available, will be digitally scanned or photographed with large-format negatives. In the absence of existing drawings, full-measured drawings of the building's plan and exterior elevations shall be prepared prior to demolition. The Campus Architect shall verify compliance with this mitigation measure prior to the initiation of any site or building demolition or construction activities. **Mitigation Measure 3.4-1b: Notification to Local Historical Societies and Architectural Salvage Companies**	Significant and Unavoidable

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		UC Berkeley shall give local historical societies or local architectural salvage companies the opportunity to salvage character-defining or significant features from the Heron and Sell buildings for public information or reuse in other locations. UC Berkeley shall contact local historical societies and architectural salvage companies and notify them of the available resources and make them available for removal. If, after 30 days, no organization is able and willing to salvage the significant materials, demolition can proceed. The Campus Architect shall verify compliance with this measure prior to the initiation of any demolition activities that could affect the resources.	
Impact 3.4-2: Cause a Substantial Adverse Change in the Significance of unique Archaeological Resources No known archaeological resources were identified on the project site. However, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5, which would result in a potentially significant impact to previously undiscovered archaeological resources.	Potentially Significant	Mitigation Measure 3.4-2: Archaeological Resources Protection Measures UC Berkeley shall implement the following steps to ensure impacts to archaeological resources will be less than significant. ▸ Ground-Disturbing Activities. ▪ Prior to soil disturbance, UC Berkeley shall confirm that contractors have been notified of the procedures for the identification of federal- or state-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological resources or tribal cultural resources on site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work. ▪ If a resource is discovered during construction (whether or not an archaeologist is present), the following measures shall be implemented: • All soil disturbing work within 35 feet of the find shall cease. • UC Berkeley shall contact a qualified archaeologist to provide and implement a plan for survey, subsurface investigation as needed to define the deposit, and assessment of the remainder of the site within the project area to determine whether the resource is significant and would be affected by the project. • Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation forms and evaluated for significance in terms of the California Environmental Quality Act (CEQA) criteria by a qualified archaeologist.	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		• If the resource is a tribal cultural resource, the consulting archaeologist, approved by UC Berkeley in consultation with the appropriate tribe as determined by the Native American Heritage Commission, shall consult with the appropriate tribe to evaluate the significance of the resource and to recommend appropriate and feasible avoidance, testing, preservation or mitigation measures, in light of factors such as the significance of the find, proposed project design, costs, and other considerations. • If avoidance is infeasible, other appropriate measures (e.g., data recovery) may be implemented. • If the resource is a non-tribal resource determined significant under CEQA, a qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant. • The archaeologist shall also perform appropriate technical analyses; prepare a comprehensive report complete with methods, results, and recommendations; and provide for the permanent curation of the recovered resources if appropriate. • The report shall be submitted to the City of Berkeley, California Historic Resources Information System Northwest Information Center, and the State Historic Preservation Office, if required. ▸ Areas with High Archaeological Sensitivity. In addition to the requirements above for ground-disturbing activities, for projects in areas with moderately high to extreme archaeological sensitivity (as shown on the confidential Figure 11, Prehistoric Cultural Sensitivity Overlay Analysis Results) ground-disturbing activities shall be monitored by both an archaeologist and a tribal representative from the outset. Monitoring shall occur at the project site in areas with moderately high archaeological sensitivity for soil removal, parcel grading, new utility trenching, and foundation-related excavation in those areas that extend into previously undisturbed soils. If resources discovered are indigenous in nature, archaeological monitoring must be undertaken by a qualified archaeologist approved by UC Berkeley in consultation with the	

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		appropriate tribe as determined by the Native American Heritage Commission or the appropriate tribe, who is familiar with a wide range of prehistoric archaeological or tribal remains and is conversant in artifact identification, human and faunal bone, soil descriptions, and interpretation. Based on project-specific daily construction schedules, field conditions, and archaeological observations, full-time monitoring may not be warranted following initial observations	
Impact 3.4-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource Tribal consultation under Assembly Bill 52 has not resulted in the identification of tribal cultural resources on the project site. However, the project could cause a substantial adverse change in the significance of previously undiscovered tribal cultural resources.	Potentially Significant	Implement Mitigation Measure 3.4-2 above	Less than Significant
Energy			
Impact 3.5-1: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy, During Project Construction or Operation Energy expenditure during construction would not be wasteful, because construction would be temporary, and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. Energy consumption associated with project operation would be typical for office, research and development and would not include natural gas. The project would achieve LEED Gold certification to ensure buildings use less energy than conventional buildings.	Less than Significant	None	Less than Significant
Impact 3.5-2: Conflict With or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency On-site renewable energy generation from the project implementation would result in an increase in renewable energy use, which would directly support the goals and strategies in the state's Energy Efficiency Action Plan and the UC Sustainable Practices Policy. The project would be in compliance with the most recent California Energy Code, which would improve energy efficiency compared to buildings built to earlier iterations of the code.	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Geology and Soils			
Impact 3.6-1: Cause Potential Substantial Adverse Impacts, Involving the Rupture of a Known Earthquake Fault, Strong Seismic Shaking, Seismic-Related Ground Failure, Including Liquefaction, or Landslides The project site is not located within the Alquist-Priolo Special Studies Zone, the landslides hazards zone, or the liquefaction hazards zone that would cause potential seismic-related adverse impacts.	Less than Significant	None	Less than Significant
Impact 3.6-2: Result in Substantial Soil Erosion or the Loss of Topsoil Construction and operation of the project would be required to comply with the requirements of the Construction General Permit and the Small MS4 Permit related to erosion and sediment control. In addition, the project would implement CBP GEO-9, which contains regulatory and other campus requirements for construction-phase and post-construction stormwater management.	Less than Significant	None	Less than Significant
Impact 3.6-3: Be Located on an Unstable Geologic Unit or Soil, or Become Unstable due to the Project, and Potentially Result in On-Site or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse As discussed in Impact 3.6-1, the project would have less than significant impact related to landslide, lateral spreading, and liquefaction. The project site is not located in an overdrafted groundwater basin that is susceptible to subsidence. The project would implement CBPs GEO-1, GEO-2, and GEO-3 to ensure that the structures at the project site would be designed in accordance with applicable building codes and design practices for structural safety.	Less than Significant	None	Less than Significant
Impact 3.6-4: Be Located on Expansive Soil, as Defined in Table 18-1-B of the Uniform Building Code, Creating Substantial Risks to Life or Property The project is required to implement CBPs GEO-1, GEO-2, and GEO-3 identified to minimize the potential effects associated with the presence of expansive soils.	Less than Significant	None	Less than Significant
Impact 3.6-5: Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature The geologic units identified underneath the project site are alluvial units, which are common in the Bay Area and are not considered unique. The project is required to implement CBP GEO-10, which establishes procedures to be followed in the event that a unique paleontological resource is discovered.	Less than Significant	None	Less than Significant
Greenhouse Gas Emissions and Climate Change			
Impact 3.7-1: Generate GHG Emissions, Either Indirectly or Directly, That May Have a Significant Impact on the Environment	Potentially Significant	**Mitigation Measure 3.7-1: Project-Specific Carbon Offsets**	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
The project would not increase Scope 1 and Scope 2 emissions relative to existing conditions. However, Scope 3 emissions would increase with implementation of the project.		In addition to compliance offsets required by cap and trade, UC Berkeley shall purchase GHG carbon offsets from a voluntary GHG carbon offset provider with an established protocol that requires projects generating GHG carbon offsets to demonstrate that the reduction of GHG emissions are real, permanent, quantifiable, verifiable, enforceable, and additional (per the definition in California Health and Safety Code Sections 38562(d)(1) and (2)).UC Berkeley shall purchase GHG carbon offsets from UC developed voluntary carbon offset projects that are real, permanent, quantifiable, peer verifiable, enforceable, and additional. Definitions for these terms follow. a. Real: Estimated GHG reductions should not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions should be conservative to avoid overstating a project's effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as "leakage"). To ensure that GHG reductions are real, CARB requires the reduction be a direct reduction within a confined project boundary. b. Additional: GHG reductions must be additional to any that would have occurred in the absence of the Climate Action Reserve, or of a market for GHG reductions generally. "Business as usual" reductions (i.e., those that would occur in the absence of a GHG reduction market) should not be eligible for registration. c. Permanent: To function as offsets to GHG emissions, GHG reductions must effectively be "permanent." This means, in general, that any net reversal in GHG reductions used to offset emissions must be fully accounted for and compensated through the achievement of additional reductions. d. Quantifiable: The ability to accurately measure and calculate GHG reductions or GHG removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emission sources, GHG sinks, or GHG reservoirs included within the offset project boundary, while accounting for uncertainty and activity-shifting leakage and market-shifting leakage. e. Verified: GHG reductions must result from activities that have been verified. Verification requires third-party (or peer review if	

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		UC-developed voluntary carbon offset projects) of monitoring data for a project to ensure the data are complete and accurate. f. Enforceable: The emission reductions from offset must be backed by a legal instrument or contract that defines exclusive ownership and can be enforced within the legal system in the country in which the offset project occurs or through other compulsory means. Please note that for this mitigation measure, only credits originating within the United States are allowed.	
Impact 3.7-2: Conflict With an Applicable GHG Emissions Reduction Plan, Policy or Regulation The project would achieve the overall objective of the 2022 Scoping Plan to phase out fossil fuel combustion building heating and energy. The project would support the implementing framework of Plan Bay Area 2050 to locate job growth within Priority Development Area. Therefore, the project would not conflict with applicable plans adopted for the purposes of reducing GHG emissions.	Less than Significant	None	Less than Significant
Hazards and Hazardous Materials			
Impact 3.8-1: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use or Disposal of Hazardous Materials The project construction activities would be required to comply with federal, state, and regional regulations and UC Berkeley's CBPs HAZ-1 through HAZ-4, which govern worker safety and the proper use, storage, and transportation of hazardous materials. Compliance with existing laws, regulations, policies, and procedures would be sufficient to ensure that the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Less than Significant	None	Less than Significant
Impact 3.8-2: 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 Compliance with all applicable federal and state laws and UC Berkeley programs, practices, and procedures related to the transportation, storage, use, and disposal of hazardous materials would minimize the potential for a release and provide for prompt and effective cleanup if an accidental release occurs. Therefore, implementing the project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact 3.8-3: Emit or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School Project construction activities would be required to comply with federal, state, and local regulations, including those that govern hazardous air pollutant emissions, storage quantities of hazardous materials, and disclosure of potential health impacts. Compliance with these regulations would be sufficient to ensure that the project would not emit or handle hazardous or acutely hazardous materials, substances, or waste in a manner that would create a significant hazard to the occupants of any existing or proposed school.	Less than Significant	None	Less than Significant
Impact 3.8-4: Create a Significant Hazard to the Public or the Environment by Being Located on a Site Included on the Cortese List As part of the project, UC Berkeley would prepare and implement a soils management plan that would require further site assessment to determine whether soil and groundwater contamination is present and identify and implement remedial actions in coordination with the applicable oversight agency, if necessary. Regulatory processes and implementation of UC Berkeley's CBP HAZ-5 would be sufficient to ensure that implementing the project would not create a significant hazard to the public or the environment if soil or groundwater contamination is identified at the project site.	Less than Significant	None	Less than Significant
Impact 3.8-5: Impair Implementation or Physically Interfere with an Adopted Emergency Response or Evacuation Plan Construction activities would comply with the provisions of the California Fire Code and the condition of the applicable construction permits from the City of Berkeley, which would ensure that adequate emergency access is maintained throughout the construction period. Design review would be coordinated with local emergency response providers to ensure that circulation proposed under the project does not hinder emergency access or evacuation.	Less than Significant	None	Less than Significant
Hydrology and Water Quality			
Impact 3.9-1: Violate Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface or Ground Water Quality during Project Construction Project construction would comply with the provisions of the Construction General Permit, EBMUD permit requirements for the discharge of groundwater, and UC Berkeley policies and CBPs HYD-1, HYD-2, and HYD-6 related to managing pollutant runoff from construction sites. The project would not violate water quality standards or waste discharge requirements during construction.	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact 3.9-2: Violate Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface or Ground Water Quality during Project Operations Implementing the project would result in an approximately 8.6-percent decrease in impervious surfaces at the project site, which would decrease the volume of stormwater runoff from the existing predevelopment condition. The project would comply with the requirements of the Phase II MS4 Permit and UC Berkeley policies and CBPs HYD-1, through HYD-6. The project would not violate water quality standards or waste discharge requirements during operations.	Less than Significant	None	Less than Significant
Impact 3.9-3: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin Implementing the project would result in a net decrease in the extent of impervious surfaces at the project site and would incorporate low-impact development site design and best management practices (BMPs) in accordance with the Phase II Small MS4 Permit and UC Berkeley Campus Design Standards and CBPs HYD-7 and HYD-8. Compliance with the Phase II Small MS4 Permit and UC Berkeley policies and CBPs would ensure that implementing the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less than Significant	None	Less than Significant
Impact 3.9-4: Substantially Alter Drainage Patterns of the Project Site Such That Substantial Erosion and Siltation, On- or Off-site Flooding, Polluted Runoff, or an Exceedance of the Capacity of Stormwater Drainage Systems Would Occur The project would alter existing drainage patterns but would incorporate low-impact development site design and BMPs to address postconstruction stormwater runoff and would result in a decrease in the extent of impervious surfaces at the project site. The project would comply with the Construction General Permit, Phase II Small MS4 Permit, and UC Berkeley policies and CBPs HYD-1 through HYD-6, HYD-10, and HYD-13. Therefore, implementing the project would not substantially alter existing drainage patterns in a manner that would result in substantial erosion or siltation or increase surface runoff in a manner that would result in flooding, exceed the capacity of stormwater drainage systems, or provide substantial additional sources of polluted runoff.	Less than Significant	None	Less than Significant
Impact 3.9-5: Conflict With or Obstruct Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
The project would increase water demand but would not use groundwater supplies. Compliance with the Construction General Permit, Phase II Small MS4 Permit, and UC Berkeley polices and CBPs would ensure that surface water and groundwater would not be adversely affected during project construction and operation.			
Land Use and Planning			
Impact 10-1: Conflict with Applicable Land Use Plan, Policy, or Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect The project would develop two laboratory buildings on UC Berkeley property to support UC Berkeley's academic and research mission. The project is consistent with UC Berkeley's 2021 Long Range Development Plan goals and objectives and with UC Berkeley's Physical Design Framework strategy related to environmental protections associated with land use.	Less than Significant	None	Less than Significant
Noise and Vibration			
Impact 3.11-1: Generate Substantial Temporary (Construction) Noise Construction activities associated with the project would expose nearby noise-sensitive receptors to noise levels that exceed applicable noise standards resulting in a potentially significant noise impact.	Potentially Significant	**Mitigation Measure 3.11-1: Implement Construction-Noise Reduction Measures** Where construction noise could exceed the applicable noise thresholds of significance (see City of Berkeley Municipal Code Section 13.40.070, Prohibited Acts) for maximum construction noise levels (dBA L_{max}), or that involve impulse equipment such as jackhammers, hoe rams, and pile driving, temporary noise barriers at least 12 feet high shall be erected, as necessary and feasible, to reduce construction noise levels. Temporary noise barriers shall be constructed with solid material with a density of at least 1.5 pounds per square foot with no gaps from the ground to the top of the temporary noise barrier and may be lined on the construction side with an acoustical blanket, curtain, or equivalent absorptive material. UC Berkeley shall verify compliance with this measure prior to issuance of demolition, grading, and/or building permits.	Significant and Unavoidable
Impact 3.11-2: Generate Substantial Temporary (Construction) Vibration Levels The project would generate excessive vibration levels during construction activities that could exceed the FTA criterion for structural damage at the nearest buildings and human annoyance at the nearest residential dwellings resulting in a potentially significant vibration impact.	Potentially Significant	**Mitigation Measure 3.11-2: Implement Construction Vibration Measures** UC Berkeley shall implement the following steps to ensure impacts from vibration causing construction activities/equipment will be less than significant to surrounding structures. ▸ Step 1 (Activity/Equipment Screening Distances): UC Berkeley shall use the FTA construction vibration screening standards shown in Table 3.11-2 and Table 3.11-3 to determine if the construction activity/equipment is within the vibration screening distances that could cause building	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		damage/human annoyance. If the construction activity/equipment is within the screening distance, then Step 2 (Alternative Methods/Equipment) shall be implemented. ▶ Step 2 (Alternative Methods/Equipment): When the anticipated vibration-causing construction activity/equipment is within the screening standards in Step 1 (Activity/Equipment Screening Distances), UC Berkeley shall consider whether alternative methods/equipment are available and shall verify that the alternative method/equipment is shown on the construction plans prior to the beginning of construction. Alternative methods/equipment may include, but are not limited to: ▪ For pile driving, the use of caisson drilling (drill piles) vibratory pile drivers, oscillating or rotating pile installation methods, and jetting or partial jetting of piles into place using a water injection at the tip of the pile shall be used, where feasible. ▪ For paving, use of a static roller in lieu of a vibratory roller shall be implemented. ▪ For grading and earthwork activities, off-road equipment shall be limited to 100 horsepower or less. Where alternative methods/equipment to vibration causing activities/equipment are not feasible, then Step 3 (Construction Vibration Monitoring Program) shall be implemented. ▶ Step 3 (Construction Vibration Monitoring Program): Prior to any project-related excavation, demolition, or construction activity within the screening distances referenced in Step 1 (Activity/Equipment Screening Distances) and where alternative methods/equipment to vibration causing activities/equipment are not feasible pursuant to Step 2 (Alternative Methods/Equipment), UC Berkeley shall prepare a construction vibration monitoring program. The program shall be prepared and implemented by a qualified acoustical consultant or structural engineer. Where the vibration sensitive receptors are historic resources, the program shall be prepared and implemented by a structural engineer with a minimum of five years of experience in the rehabilitation and restoration of historic buildings and a historic preservation architect meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualifications Standards. The program shall include the following:	

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		▪ Prepare an existing conditions study to establish the baseline condition of the vibration sensitive resources in the form of written descriptions with a photo survey, elevation survey, and crack-monitoring survey for the vibration-sensitive building or structure. The photo survey shall include internal and external crack monitoring in the structure, settlement, and distress, and document the condition of the foundation, walls, and other structural elements in the interior and exterior of the building or structure. Surveys will be performed prior to, in regular intervals during, and after completion of all vibration-generating activity. Where receptors are historic resources (Heywood Apartments and The Studio Building), the study shall describe the physical characteristics of the resources that convey their historic significance. ▪ Determine the number, type, and location of vibration sensors and establish a vibration velocity limit (as determined based on a detailed review of the proposed buildings), method (including locations and instrumentation) for monitoring vibrations during construction, and method for alerting responsible persons who have the authority to halt construction should limits be exceeded or damaged observed. ▪ Perform monitoring surveys prior to, in regular intervals during, and after completion of all vibration-generating activity and report any changes to existing conditions, including, but not limited to, expansion of existing cracks, new spalls, other exterior deterioration, or any problems with character-defining features of a historic resource that are discovered. UC Berkeley shall establish the frequency of monitoring and reporting, based upon the recommendations of the qualified acoustical consultant or structural engineer or by the historic architect and structural engineer for the historic Heywood Apartments and The Studio Building. Monitoring reports shall be submitted to UC Berkeley's designated representative responsible for construction activities. ▪ Develop a vibration monitoring and construction contingency plan, which shall identify where monitoring would be conducted, establish a vibration monitoring schedule, define structure-specific vibration limits, and require photo, elevation, and crack surveys to document conditions before and after demolition and construction activities. Construction contingencies would be identified for when	

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		vibration levels approach the limits. If vibration levels approach limits, suspend construction, and implement contingencies to either lower vibration levels or secure the affected structure. ▪ Report substantial adverse impacts to vibration sensitive buildings including historic resources related to construction activities that are found during construction to UC Berkeley's designated representative responsible for construction activities. UC Berkeley's designated representative shall adhere to the monitoring team's recommendations for corrective measures, including halting construction or using different methods, in situations where demolition, excavation/construction activities would imminently endanger historic resources. UC Berkeley's designated representative would respond to any claims of damage by inspecting the affected property promptly, but in no case more than five working days after the claim was filed and received by UC Berkeley's designated representative. Any new cracks or other damage to any of the identified properties will be compared to pre-construction conditions and a determination made as to whether the proposed project could have caused such damage. If the project is demonstrated to have caused any damage, such damage would be repaired to the pre-existing condition. Site visit reports and documents associated with claims processing would be provided to the relevant government body with jurisdiction over the neighboring historic resource, as necessary. ▪ Conduct a post-survey of the structure where either monitoring has indicated high levels or complaints of damage and make appropriate repairs where damage has occurred as a result of construction activities. ▪ Prepare a construction vibration monitoring report that summarizes the results of all vibration monitoring and submit the report after the completion of each phase identified in the project construction schedule. The vibration monitoring report shall include a description of measurement methods, equipment used, calibration certificates, and graphics as required to clearly identify vibration-monitoring locations. An explanation of all events that exceeded vibration limits shall be included together with proper documentation supporting any such claims. The construction vibration monitoring report shall	

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		be submitted to UC Berkeley within two weeks of completion of each phase identified in the project construction schedule. ▪ Designate a person responsible for registering and investigating claims of excessive vibration. The contact information of such a person shall be clearly posted in one or more locations at the construction site	
Impact 3.11-3: Generate Substantial Increase in Long-Term (Traffic) Noise Levels Project operation would result in an increase in traffic volumes along project-affected roadways, resulting in long-term permanent increases in traffic noise. Based on modeling conducted and applicable noise increase standards, the project would not result in a significant increase in traffic noise on project-affected roadways	Less than Significant	None	Less than Significant
Impact 3.11-4: Exposure of Existing Sensitive Receptors to new Stationary Noise Sources Loading dock activities would generate noise levels exceeding the City of Berkeley daytime noise standard at the nearest noise sensitive receptors.	Potentially Significant	**Mitigation Measure 3.11-4a: Implement Noise Reduction Measures to Reduce Long-Term Noise Impacts of Loading Docks** To reduce the increases in noise associated with onsite truck and loading/unloading activities, the following measures shall be adopted as conditions of approval and implemented by the University: ▶ Strategic scheduling: The University shall schedule truck deliveries and all loading and unloading activities during the hours of 7:00 a.m. to 10:00 p.m. per Section 13.40.070 of the Berkeley Municipal Code to minimize sleep disturbance and evening leisure activities at the residential dwellings. ▶ Quiet equipment: The University shall provide quiet equipment for unloading and loading such as electric pallets jacks, low-noise forklifts or pallet jacks. ▶ Engine Idling: The University shall post a clear, visible, and legible sign for truck drivers instructing them to turn off engines as soon as possible to avoid unnecessary truck engine noise. ▶ Regular maintenance: University maintenance staff shall provide regular and routine maintenance to loading dock equipment, such as dock levelers, doors, pallet jacks or forklifts to prevent unnecessary noise caused by mechanical and wear and tear issues. ▶ Dock levelers and bumpers: The University shall upgrade or maintain dock levelers and bumpers to minimize noise generated by the impact of pallet jacks, forklifts, and other equipment during loading operations.	Significant and Unavoidable

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		▶ Dock seals and shelters: The University shall install high-quality dock seals or shelters around the loading area to create a better seal between the dock and trucks, reducing noise leakage during loading and unloading. **Mitigation Measure 3.11-4b: Implement Design Measures to Reduce Long-Term Noise Impacts of Loading Docks** The University shall hire a qualified acoustical specialist to prepare a noise minimization plan that will identify site specific parameters (e.g., number of trucks accessing the site), design strategies, and noise attenuation features to reduce noise generated by on-site loading dock activity to levels that are below City of Berkeley daytime noise standards for multi-family and high-density residential uses (i.e., 60 dBA L_{50}). The noise minimization plan shall include, but not be limited to, a combination of the following measures (or other measures demonstrated to be equally effective). ▶ Design the South Building such that the structure serves as a barrier protecting off-site receptors from noise generated by loading dock activity. The typical sound level reduction a building could provide ranges from 12 dB with windows open to 27 dB with windows closed (EPA 1978: 11) and additional reduction is achievable if masonry exterior walls are used in the building's construction (Caltrans 2020: 7-37). ▶ Enclose the loading dock area with one or more walls such that it serves as a sound barrier between all adjacent sensitive receptors and the facility. The wall shall be constructed of solid material (e.g., concrete, brick), scenic quality factors shall be considered during design, and barriers shall be designed to blend into the landscape on the project site, to the extent feasible. Generally, a barrier that breaks the line of site between a source and a receiver will typically result in at least 5 dB of noise reduction. Measures identified in the noise minimization plan shall be incorporated into the project design and identified on the final site plan. Prior to the approval of the final site plan, UC Berkeley shall verify that the measures are included in the site plan.	
Population and Housing			
Impact 3.12-1: Induce Substantial Unplanned Population Growth, Either Directly or Indirectly Implementation of the project would result in a net increase of approximately 1,074 new employment opportunities within the UC Berkeley campus in the City	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
of Berkeley. The addition of up to 1,074 new employment opportunities is within the UC Berkeley's 2021 Long Range Development Plan projection and Plan Bay Area 2050's projection of employment growth.			
Public Services and Recreation			
Impact 3.13-1: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Fire Protection Facilities, to Maintain Acceptable Service Ratios Implementation of the project would not require the construction or expansion of fire protection facilities. The project would also be constructed in compliance with fire and emergency safety requirements and would occur within the boundaries of existing campus development and would not result in an expansion of service area.	Less than Significant	None	Less than Significant
Impact 3.13-2: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Police Protection Facilities, to Maintain Acceptable Service Ratios The project would implement CBP PS-1 which would reduce potential impacts to police services through coordination between University of California Police Department (UCPD) and Berkeley Police Department (BPD). Implementation of the project would not substantially change the police officer service ratio for BPD and the project would be mainly served by UCPD. Implementation of the project would not require the construction or expansion of police protection facilities.	Less than Significant	None	Less than Significant
Impact 3.13-3: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered School Facilities, to Maintain Acceptable Service Ratios The project would introduce additional employees that could spur families with school-aged children to move to the city and increase school attendance within Berkeley United School District (BUSD). Based on the existing capacity of schools within the BUSD, adequate capacity is available within existing schools to accommodate the school-age students whose families move into existing or planned housing within the city.	Less than Significant	None	Less than Significant
Impact 3.13-4: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Library Facilities, to Maintain Acceptable Service Ratios The increase in employment within the City Environs would not create a substantial increase in demand on the existing libraries and their resources. In addition, UC Berkeley has adequate library facilities to serve the new employees.	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact 3.13-5: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Parks, to Maintain Acceptable Service Ratios Future employees would have access to existing on-campus recreational facilities, and recreation use by this population would be accommodated by existing facilities on campus.	Less than Significant	None	Less than Significant
Impact 3.13-6: 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 Due to the project proximity to Campus Park and UC Berkeley's recreational facilities, project employees would likely use the existing UC Berkeley's recreational facilities. The existing UC Berkeley recreational facilities would be anticipated to be able to absorb parks and recreational demands from the project. The project would not increase the use of existing parks and recreational facilities such that substantial physical deterioration would occur or be accelerated.	Less than Significant	None	Less than Significant
Impact 3.13-7: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities That Might Have an adverse Physical Effect on the Environment The project would include construction of a courtyard between the two proposed buildings. The courtyard would provide landscaping and seating for project employees and the public. Environmental impacts associated with the construction of the courtyard are evaluated throughout this EIR. The project would not require the construction of additional new facilities because existing UC Berkeley and City of Berkeley facilities would be anticipated to be able to absorb parks and recreational demands resulting from the project.	Less than Significant	None	Less than Significant
Transportation			
Impact 3.14-1: Conflict With a Program, Plan, Ordinance, or Policy Addressing the Circulation System The project would implement CBPs TRAN-5 through TRAN-8 to minimize construction transportation impacts and conform with UC Berkeley Campus Design Standards during construction. Project operation would be consistent with applicable transportation-related plans, ordinances, and policies as summarized in Table 3.14-3.	Less than Significant	None	Less than Significant
Impact 3.14-2: Conflict With or be Inconsistent with CEQA Guidelines 15064.3, Subdivision (b) The project is exempt from further VMT analysis. The project would not conflict or be inconsistent with CEQA Guidelines 15064.3, subdivision (b).	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact 3.14-3: Substantially Increase Hazards Due to a Geometric Design Feature or Incompatible Uses Implementation of the project would not result in changes to existing roadways and therefore no new sharp curves or hazardous conditions would be created. Replacement of the existing structures with two new buildings would not generate wind flows that could create pedestrian-level hazards. The project would not introduce an incompatible use with the potential to create a transportation hazard.	Less than Significant	None	Less than Significant
Impact 3.14-4: Result in Inadequate Emergency Access The project would implement a Construction Traffic Management Plan during construction, which would ensure adequate emergency access is maintained. The project would not result in physical changes to existing roadways that would adversely affect emergency access. In addition, project access would be reviewed by the UC Fire Marshal and Berkeley Fire Department for compliance with their respective standards and regulations to ensure adequate emergency access is provided.	Less than Significant	None	Less than Significant
Utilities and Service Systems			
Impact 3.15-1: Require or Result in the Relocation or Construction of New or Expanded Water Supply Infrastructure That Would Cause Significant Environmental Effects Project implementation would require connections to existing water infrastructure to support the proposed laboratory facilities. The potential environmental impacts resulting from tie-ins to existing infrastructure are evaluated within the scope of this EIR's analysis. No upgrades to the capacity of existing infrastructure would be anticipated as a direct result of the project.	Less than Significant	None	Less than Significant
Impact 3.15-2: Have Sufficient Water Supplies to Serve the Project and Reasonably Foreseeable Future Development During Normal, Dry, and Multiple Dry Years The project design would incorporate water conservation measures in compliance with state-mandated water-efficiency programs and water use reductions. East Bay Municipal Utility District (EBMUD) anticipates having adequate water supplies to accommodate customer demand, including the project's water demand, through 2050 during normal years and single dry years and would obtain supplemental supplies to meet customer demand during multi-year droughts.	Less than Significant	None	Less than Significant
Impact 3.15-3: Require or Result in the Relocation or Construction of New or Expanded Wastewater Infrastructure That Would Cause Significant Environmental Effects	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Project implementation would require connections to existing wastewater infrastructure. The potential environmental impacts resulting from tie-ins to existing wastewater infrastructure are evaluated in this EIR's analysis. No upgrades to the capacity of existing wastewater infrastructure would be anticipated to be necessary as a direct result of the project.			
Impact 3.15-4: Result in a Determination by the Wastewater Treatment Provider That It Has Adequate Capacity to Serve the Project's Projected Demand in Addition to Existing Commitments EBMUD has indicated that its Main Wastewater Treatment Plant and interceptor system would have adequate dry weather capacity to accommodate the wastewater flows generated by the project but identified existing capacity issues during wet weather flows. In conformance with Section 54999 of the California Government Code, UC Berkeley would pay EBMUD sewer connection and wastewater collection fees. EBMUD would use these fees to ensure adequate capacity by continually upgrading components of the wastewater collection and transmission systems through capital improvement programs.	Less than Significant	None	Less than Significant
Impact 3.15-5: Require or Result in the Relocation or Construction of New or Expanded Electricity and Telecommunications Infrastructure That Would Cause Significant Environmental Effects Project implementation would require connections to existing electricity and telecommunications infrastructure to support the proposed uses. The potential environmental impacts resulting from tie-ins to existing electricity and telecommunications infrastructure are evaluated in this EIR's analysis. No other capacity upgrades to electricity and telecommunications infrastructure would be required for the project.	Less than Significant	None	Less than Significant
Impact 3.15-6: Generate Solid Waste in Excess of State or Local Standards or in Excess of the Capacity of Local Infrastructure or Otherwise Impair the Attainment of Solid Waste Reduction Goals or Requirements The landfill that serves UC Berkeley has sufficient capacity for disposal of solid waste generated by the project. Implementation of state requirements, University of California sustainability policies, and UC Berkeley's Zero Waste Plan and continuing best practices would reduce landfill contributions in a manner that would meet or exceed the requirements of applicable solid waste reduction goals and requirements, including the California Integrated Waste Management Act, Assembly Bills 341 and 1826, and Senate Bill 1374.	Less than Significant	None	Less than Significant

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Wildfire			
Impact 3.16-1: Substantially Impair an Adopted Emergency Response Plan or Emergency Evacuation Plan Project construction activities could result in short-term, temporary impacts on street traffic because of roadway improvements. However, the project would implement UC Berkeley CBPs TRANS-2 and TRANS-5 to ensures adequate emergency right-of-way would be maintained. In addition, the project would comply with existing UC Berkeley plans and policies related to emergency response and evacuation.	Less than Significant	None	Less than Significant
Impact 3.16-2: Exacerbate Wildfire or Uncontrolled Spread of Wildfire Due to Slope, Prevailing Winds, and Other Factors The project site is located in Downtown Berkeley on an already developed site lacking vegetation and surrounded by development. It is relatively flat and would therefore not experience wildfire-related impacts related to slope. Implementing the project would not, from prevailing winds or other factors, such as vegetation, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.	Less than Significant	None	Less than Significant
Impact 3.16-3: Require the Installation or Maintenance of Associated Infrastructure (Such as Roads, Fuel Breaks, Emergency Water Sources, Power Lines, or Other Utilities) That May Exacerbate Fire Risk or That May Result in Temporary or Ongoing Impacts to the Environment The project site is located in Downtown Berkeley and would be redeveloped as part of the project. The project would not require alteration of roadways or other infrastructure. The project site is served by existing utility systems, and the project would not require the installation of additional off-site utilities infrastructure. Because the project site is located outside fire hazard severity zones and the Wildland-Urban Interface, the installation of on-site utilities would not exacerbate fire risks.	Less than Significant	None	Less than Significant
Impact 3.16-4: Expose People or Structures to Significant Risks, Including Downslope or Downstream Flooding or Landslides, as a Result of Runoff, Post-Fire Slope Instability, or Drainage Changes The project site is in an urbanized area and is surrounded by development. The existing topography of the project site is relatively flat, so the site is not located on land susceptible to landslides. The project site is also not located within a flood hazard severity zone. Therefore, construction and operation of the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides or post-fire slope instability.	Less than Significant	None	Less than Significant

This page intentionally left blank.

1 INTRODUCTION

This environmental impact report (EIR) has been prepared for the University of California, Berkeley (UC Berkeley) Innovation Zone Project (project). It has been prepared in accordance with the California Environmental Quality Act (CEQA), which is found in the California Public Resources Code, Division 13, and with the State CEQA Guidelines, which are found in Title 14 of the California Code of Regulations, commencing with Section 15000. According to State CEQA Guidelines Section 15378, this project is considered a "project" subject to environmental review as implementation of the project is "an action [undertaken by a public agency] which has the potential for resulting in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment." The Board of Regents (the Regents) of the University of California (UC) is the lead agency under CEQA for the project. Under CEQA, the lead agency for a project is the public agency with primary responsibility for carrying out or approving the project and for implementing the requirements of CEQA.

As stated in State CEQA Guidelines Section 15002, the basic purposes of CEQA are to:

- inform governmental decision makers and the public about the potential significant environmental effects of proposed activities;
- identify the ways in which environmental damage can be avoided or significantly reduced;
- prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Pursuant to State CEQA Guidelines Section 15121, an EIR is an informational document that is required to (1) identify the potentially significant environmental effects of a project on the environment, (2) indicate the manner in which those significant effects can be avoided or significantly lessened through implementation of potentially feasible mitigation measures, (3) identify a reasonable range of potentially feasible alternatives to a project that would eliminate or substantially lessen any significant environmental effects, and (4) identify any significant and unavoidable adverse impacts that cannot be mitigated or otherwise reduced. When considering whether to approve a proposed project, the lead agency's decision-making body must consider the information in this EIR, along with other information presented to that body. Although the information in this EIR does not control the ultimate decision about a project, before approving the project, the decision-making body must consider the information in this EIR and respond to each significant effect identified in this EIR by making findings pursuant to CEQA Section 21081.

Pursuant to CEQA Section 21002, public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures that would substantially lessen the significant environmental effects of such projects. As defined in Section 15364 of the State CEQA Guidelines, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

State CEQA Guidelines Section 15021 further indicates that under CEQA, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors, in determining whether and how a project should be approved. State CEQA Guidelines Section 15093 provides that if an agency decides to approve a project that would cause one or more significant effects on the environment, the agency must prepare a "statement of overriding considerations" to reflect the ultimate balancing of competing public objectives. The environmental review process is further explained below in Section 1.3, "Environmental Review and Approval Process."

UC Berkeley is part of UC, a constitutionally created entity of the State of California with "full powers of organization and government" (California Constitution Article IX, Section 9). As a constitutionally created state entity, UC is not subject to local land use policies, such as those that may be found in the City of Berkeley (City) General Plan or land use ordinances, whenever using property under its control in furtherance of its educational purposes.

1.1 PROJECT OVERVIEW

The project would be located on a 1.86-acre site in the City of Berkeley, immediately west of the UC Berkeley Campus Park. The project site is comprised of several developed parcels (Assessor's Parcel Numbers 057-2034-014-02, 057-2034-014-03, 057-2034-003-00, 057-2034-004-00, 057-2034-011-00, and 057-2034-012-00) and includes University Hall and its Annex (referred to collectively throughout this document as University Hall), the University parking lot immediately west of University Hall, and UC-owned commercial buildings located at 2136–2140 University Avenue (Ernest A. Heron Building) and 2154–2160 University Avenue (Martha E. Sell Building). The Ernest A. Heron and Martha E. Sell buildings are City-designated landmarks. The project would involve the removal of all structures and redevelopment of the project site with two laboratory buildings (referred to as the South Building and the North Building) with associated vehicle parking. The two buildings would provide laboratories, offices, and other collaborative meeting spaces for academic/research purposes. Building occupants would include UC Berkeley researchers, faculty, and students from multiple disciplines, as well as unaffiliated employees. On-site parking would be located on the lower-level floors of the North Building. Implementing the project would not result in an increase in UC Berkeley student population/enrollment, but the project would result in an increase in employment on the project site.

With respect to the individual buildings that would be developed at the project site, the South Building would be an approximately 176,000-gross-square-foot new laboratory building that includes five above-ground floors, a non-occupied mechanical space on the roof, and a below-grade basement. The South Building would provide space for permanent occupancy for up to 340 occupants. The North Building would be an approximately 310,000-gross-square-foot new laboratory building, that includes an approximately 154,400-gross-square-foot garage with up to four above-grade levels for vehicle parking; the building would consist of a total of 11 above-grade floors and include a non-occupied mechanical space on the roof. The North Building would provide space for permanent occupancy for up to 750 occupants and up to 350 parking spaces. A linear courtyard approximately 40 feet wide by 200 feet long would be located between the South and North Buildings. The courtyard would be available for use by building occupants.

In addition, streetscape features, including trees, bicycle racks, and trash receptacles, would be installed along the northern, eastern, and southern sides of the site perimeter and sidewalks. Landscaping would be consistent with the surrounding landscape and would include native and/or climate adaptive and drought-resistant plant materials.

A full description of the project is provided in Chapter 2, "Project Description," of this EIR.

1.2 EIR SCOPE

As described in State CEQA Guidelines Section 15161, this EIR is a "project" EIR. A project EIR examines the environmental impacts of a specific project, focusing primarily on the changes in the environment that would result from the project components identified in Section 1.1, "Project Overview," and described in detail in Chapter 2, "Project Description." This EIR examines the physical environmental effects that would result from implementation of the project, including planning, construction, and operation, pursuant to State CEQA Guidelines Section 15161.

This EIR provides a detailed evaluation of the following environmental resource topics:

- aesthetics;
- air quality;
- biological resources;
- archaeological, historical, and tribal cultural resources;
- energy;
- geology and soils;
- greenhouse gas emissions and climate change;
- hazards and hazardous materials;
- hydrology and water quality;
- land use and planning;
- noise and vibration;
- population, employment, and housing;
- public services and recreation;
- transportation;
- utilities and service systems; and
- wildfire.

Under CEQA and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when they are not significant (CEQA Section 21002.1[e], State CEQA Guidelines Sections 15128 and 15143). Based on a review of the potential effects of the project, UC Berkeley determined that agriculture and forestry resources and mineral resources do not require detailed evaluation in this EIR. Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures," provides a summary of resource areas with impacts found not to be significant.

This environmental review focuses on the potentially significant environmental effects of implementing the project. As defined in State CEQA Guidelines Section 15382, a "significant effect on the environment" is:

> a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether a physical change is significant.

In evaluating the significance of the environmental effect of a project, the State CEQA Guidelines require the lead agency to consider direct physical changes in the environment and reasonably foreseeable indirect physical changes in the environment that may be caused by the project (CEQA Guidelines Section 15064[d]). A direct physical change in the environment is a physical change in the environment caused by and immediately related to the project. An indirect physical change in the environment is a physical change in the environment not immediately related to the project but caused indirectly by the project. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact that may be caused by the project.

State CEQA Guidelines Section 15064(e) further indicates that economic and social changes resulting from a project shall not be treated as significant effects on the environment. Economic or social changes may be used, however, to determine that a physical change shall be regarded as a significant effect on the environment. In addition, where a reasonably foreseeable physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project.

1.3 ENVIRONMENTAL REVIEW AND APPROVAL PROCESS

1.3.1 Scoping

State CEQA Guidelines Section 15083 authorizes and encourages an early consultation or scoping process to help identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed and considered in an EIR and to help resolve the concerns of affected regulatory agencies, organizations, and the public. Scoping is designed to explore issues for environmental evaluation, ensuring that important considerations are not overlooked and uncovering concerns that might otherwise go unrecognized.

In compliance with CEQA Section 21080.4, UC Berkeley circulated a notice of preparation (NOP) of an EIR for the project to the Office of Planning and Research State Clearinghouse and interested agencies and persons on October 30, 2023, for a 30-day review period. A virtual public scoping meeting was held on November 15, 2023, at 6:30 p.m. The NOP and scoping process solicited comments from responsible and trustee agencies and interested parties regarding the scope of this Draft EIR.

A total of 10 comment letters and one oral comment were received from three agencies, four organizations, and four individuals during the NOP public review period. Table 1.3-1 provides a list of the comment letters received. Appendix A, "Notice of Preparation and Scoping Comments," of this EIR contains the NOP and comments received by UC Berkeley in response to the NOP. Where appropriate and consistent with CEQA requirements, these comments are considered and addressed in this document.

Table 1-1 List of Comment Letters Received

Commenter	Date
Agency	
Native American Heritage Commission	October 31, 2023
East Bay Municipal Utility District	November 20, 2023
Alameda County Transportation Commission	November 29, 2023
Organization	
American Federation of State, County, and Municipal Employees Local 3299	November 28, 2023
Berkeley Architecture Heritage Association	November 29, 2023
Biolab Watch	November 29, 2023
Make UC A Good Neighbor	November 29, 2023
Individual	
Alfred Twu	October 30, 2023
Cameron Danesh[1]	November 15, 2023
Arlene Owseichik	November 21, 2023
Cameron Danesh	November 29, 2023

Note: [1] This is an oral comment submitted during the NOP scoping meeting on November 15, 2023.

1.3.2 Public Review of This Draft EIR

This Draft EIR is available for review by the public and interested parties, agencies, and organizations for a 45-day comment period starting February 9, 2024, and ending March 25, 2024. The Draft EIR is available for public review as follows:

- The Draft EIR is available online at: https://capitalstrategies.berkeley.edu/environmental-review.
- A printed copy of the Draft EIR is available for public review during the comment period at the following location:
  - 200 A&E Building, Berkeley, CA 94720-1382 (by appointment only; please call 510.495.5786 for appointment)

During the comment period, an online public hearing will be held on Wednesday, February 28, 2024, beginning at 6:00 p.m. The public is invited to provide oral and written comments on this Draft EIR at this hearing or provide written comments via mail or email to UC Berkeley by 5:00 p.m. on March 25, 2024, to:

Raphael Breines, Senior Planner
Physical & Environmental Planning
University of California, Berkeley
200 A&E Building, Berkeley, CA 94720-1382

Email: planning@berkeley.edu (Please include "Draft EIR Comments: UC Berkeley Innovation Zone Project" in the subject line. Public agencies providing comments are asked to include a contact person for the agency.)

State CEQA Guidelines Section 15204(a) provides guidance on the focus of EIR review, indicating that in reviewing Draft EIRs, persons and public agencies "should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" and that comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects. This section further states that:

reviewers should be aware that the adequacy of an EIR is determined in terms of what is reasonably feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project. CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended by commenters. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR.

1.3.3 Final EIR and Consideration of Project Approval

Upon completion of the 45-day review period for the Draft EIR, UC Berkeley will review all written comments received and prepare written responses to comments raising significant environmental issues. The Final EIR will then be prepared and will include all the comments received, written responses to those comments in accordance with State CEQA Guidelines Section 15088, and any revisions to the Draft EIR that become necessary after consideration of public comments. Those who submitted comments on the Draft EIR will be notified of the availability of the Final EIR and the date and location of the public hearing to consider the certification of this EIR and approval of the project.

All responses to comments submitted on the Draft EIR by public agencies will be provided to those agencies at least 10 days before certification of this EIR. The Final EIR (consisting of this Draft EIR and the response-to-comments document) will be presented to the Regents or its designee for certification and its consideration regarding a final decision on the project. When a public agency approves a project covered by an EIR, CEQA requires that the public agency adopt a program to monitor and report on mitigation measures pursuant to that EIR. CEQA requires that such a program be adopted at the time the agency approves a project or determines to carry out a project for which an EIR has been prepared. This requirement ensures that mitigation measures identified in this EIR are implemented. The mitigation monitoring and reporting program for the project will be considered by the Regents or its designee in conjunction with the Final EIR.

The Regents or its designee may find that certain mitigation measures are outside the jurisdiction of UC Berkeley to implement, that no feasible mitigation measures have been identified for a given significant impact, or that the efficacy of a mitigation measure may be uncertain or not sufficient to reduce the significant impact to less than significant. To approve the project in those cases, the Regents or its designee will have to adopt a statement of overriding considerations if it determines that economic, legal, social, technological, or other benefits of the project outweigh the significant and unavoidable effects on the environment.

1.4 ORGANIZATION OF THIS EIR

The content and format of this EIR are designed to meet the requirements of CEQA and the State CEQA Guidelines (Sections 15122–15132). This EIR is organized as follows:

- "**Executive Summary**": This chapter introduces the project; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to a less-than-significant level.
- **Chapter 1, "Introduction**": This chapter provides a description of the purpose and background of the project, the purpose and intended uses of this EIR, the CEQA public involvement process, and the scope and organization of this EIR.
- **Chapter 2, "Project Description**": This chapter describes the objectives and location of the project, existing conditions of and around the project site, and the nature and location of specific elements of the project.
- **Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures**": The sections in this chapter evaluate the environmental impacts expected under the project, arranged by resource area (e.g., air quality, hydrology and water quality). In each subsection of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after implementation of the project are evaluated for each resource area. For any significant or potentially

significant impact that would result from project implementation, mitigation measures are presented, and the level of impact significance after mitigation is identified.

- **Chapter 4, "Cumulative Impacts"**: This chapter presents an analysis of the cumulative impacts that would result from implementation of the project, together with other past, present, and probable future projects.
- **Chapter 5, "Other CEQA Considerations"**: This chapter evaluates the potentially significant and unavoidable impacts, significant and irreversible commitment of resources, and growth-inducing impacts that could result from implementation of the project.
- **Chapter 6, "Alternatives"**: This chapter evaluates alternatives to the project, including the No Project Alternative; identifies alternatives considered but eliminated from further consideration; and identifies the environmentally superior alternative.
- **Chapter 7, "List of Preparers"**: This chapter identifies the preparers of and contributors to the document.
- **Chapter 8, "References"**: This chapter identifies the references used as sources of information in this EIR.
- **Chapter 9, "List of Abbreviations"**: This chapter lists the common acronyms and abbreviations found in this EIR.

The **appendices** contain the following reference items, which provide support and documentation of the analyses performed for this report:

- Appendix A contains the NOP and scoping comments received.
- Appendix B contains the complete list of UC Berkeley continuing best practices.
- Appendix C contains air quality, energy, and greenhouse gas emission modeling outputs and health risk assessment.
- Appendix D contains special-status wildlife and plants tables.
- Appendix E contains the historic resources evaluation and tribal cultural resources consultation information.
- Appendix F contains the project-specific geotechnical investigation.
- Appendix G contains the Phase I Environmental Site Assessment.
- Appendix H contains noise modeling outputs.
- Appendix I contains the project-specific traffic demand estimates.
- Appendix J contains the project-specific wind hazards study.

2 PROJECT DESCRIPTION

This chapter describes the project evaluated in this EIR. It includes an overview of the project, a description of the project location and existing conditions, a list of project objectives, a description of the project components, a description of project construction, a list of best practices, and a description of the planning context for this EIR.

2.1 PROJECT OVERVIEW

UC Berkeley proposes to develop the project in the City of Berkeley immediately west of the UC Berkeley Campus Park. The project site is composed of six parcels, including University Hall, the University parking lot immediately west of University Hall, and two UC-owned commercial buildings located at 2136–2140 University Avenue (Ernest A. Heron Building) and 2154–2160 University Avenue (Martha E. Sell Building), which are City-designated landmarks. UC Berkeley would redevelop the project site with two laboratory buildings that also contain academic and administrative space, as well as a parking garage.

2.2 PROJECT LOCATION

The UC Berkeley campus is located in the East Bay of the San Francisco Bay Area. UC Berkeley is in an urbanized area, surrounded by a mix of largely residential, institutional, and commercial land uses to the north, west, and south, and open space in the East Bay hills to the east. UC Berkeley is predominantly located in the Cities of Berkeley and Oakland. The campus is organized into five land use zones for planning purposes: the Campus Park, the Hill Campus West, the Hill Campus East, the Clark Kerr Campus, and the City Environs. The Campus Park land use zone occupies approximately 180 acres and is home to most of UC Berkeley's academic and research program and student life facilities. The Hill Campus West land use zone occupies 50 acres and is home to student housing, along with sports and recreation facilities. The Hill Campus East land use zone occupies approximately 750 acres and is made up mostly of natural open space, as well as several important facilities. The Clark Kerr Campus land use zone occupies approximately 45 acres and comprises student and faculty housing, a conference center, childcare facilities, and indoor and outdoor intercollegiate athletics and recreation facilities. Other University-owned properties are located in the City Environs land use zone, mostly concentrated in the City of Berkeley's Southside neighborhood and Downtown area.

The project site is located in the City Environs land use zone, located immediately west of UC Berkeley's Campus Park, in the City of Berkeley, Alameda County (Figure 2-1). It is located directly across from the West Crescent, which is a significant and primary campus gateway. The site is bounded by University Avenue to the north, Oxford Street to the east, and Addison Street to the south. It encompasses the following six parcels, all of which are owned by UC Berkeley:

- Assessor's Parcel Number (APN) 057-2034-014-02: University Hall,
- APN 057-2034-014-03: University Hall,
- APN 057-2034-003-00: surface parking lot,
- APN 057-2034-004-00: surface parking lot,
- APN 057-2034-011-00: Ernest A. Heron Building (2136–2140 University Avenue), and
- APN 057-2034-012-00: Martha E. Sell Building (2154–2160 University Avenue).

The project site is located in the Downtown Berkeley Priority Development Area and Transit Priority Area (Figure 2-2).[1] The project site is approximately 0.12 mile (625 feet) northeast of the Downtown Berkeley Bay Area Rapid Transit (BART) station. The public transit facilities nearest to the project site are Lines F, 67, 605, 800, and 851, which are operated by the Alameda-Contra Costa Transit District (AC Transit). These five bus lines have stops within one block

[1] Priority Development Areas are places near public transit that are planned for new homes, jobs, and community amenities. A Transit Priority Area is an area within one-half mile of an existing or planned major transit stop.

from the project site (AC Transit 2023). Major regional roadways serving the UC Berkeley campus and the City Environs land use zone include Interstate 580, State Route (SR) 13, and SR 24.

2.3 GENERAL PLAN LAND USE AND ZONING DESIGNATION

The UC Berkeley 2021 Long Range Development Plan (2021 LRDP) is a comprehensive long-range land use plan that guides physical development on the UC Berkeley campus consistent with UC Berkeley's mission, priorities, strategic goals, and campus population projections through the 2036-2037 academic year. On July 22, 2021, the Regents certified the 2021 LRDP EIR (State Clearinghouse No. 2020040078) and approved the 2021 LRDP. The 2021 LRDP EIR provides a program-level analysis of the overall proposed development and campus population projections in the 2021 LRDP. The project was conceptually identified in the 2021 LRDP as a redevelopment site for academic life and parking uses with up to 15 stories, 660,000 gross square feet and 1,000 parking spaces; the project is consistent with the land uses and intensities of development contemplated in the 2021 LRDP.

The University is not subject to local land use regulation whenever using property under its control in furtherance of its educational mission. Accordingly, the City's land use regulations are discussed for informational purposes only. Downtown Berkeley serves as the City's primary civic, office, entertainment, and retail center. The project site's land use designation in the City of Berkeley General Plan is Downtown, and the zoning designation is "C-DMU Core" (Downtown Mixed-Use).

2.4 EXISTING CONDITIONS

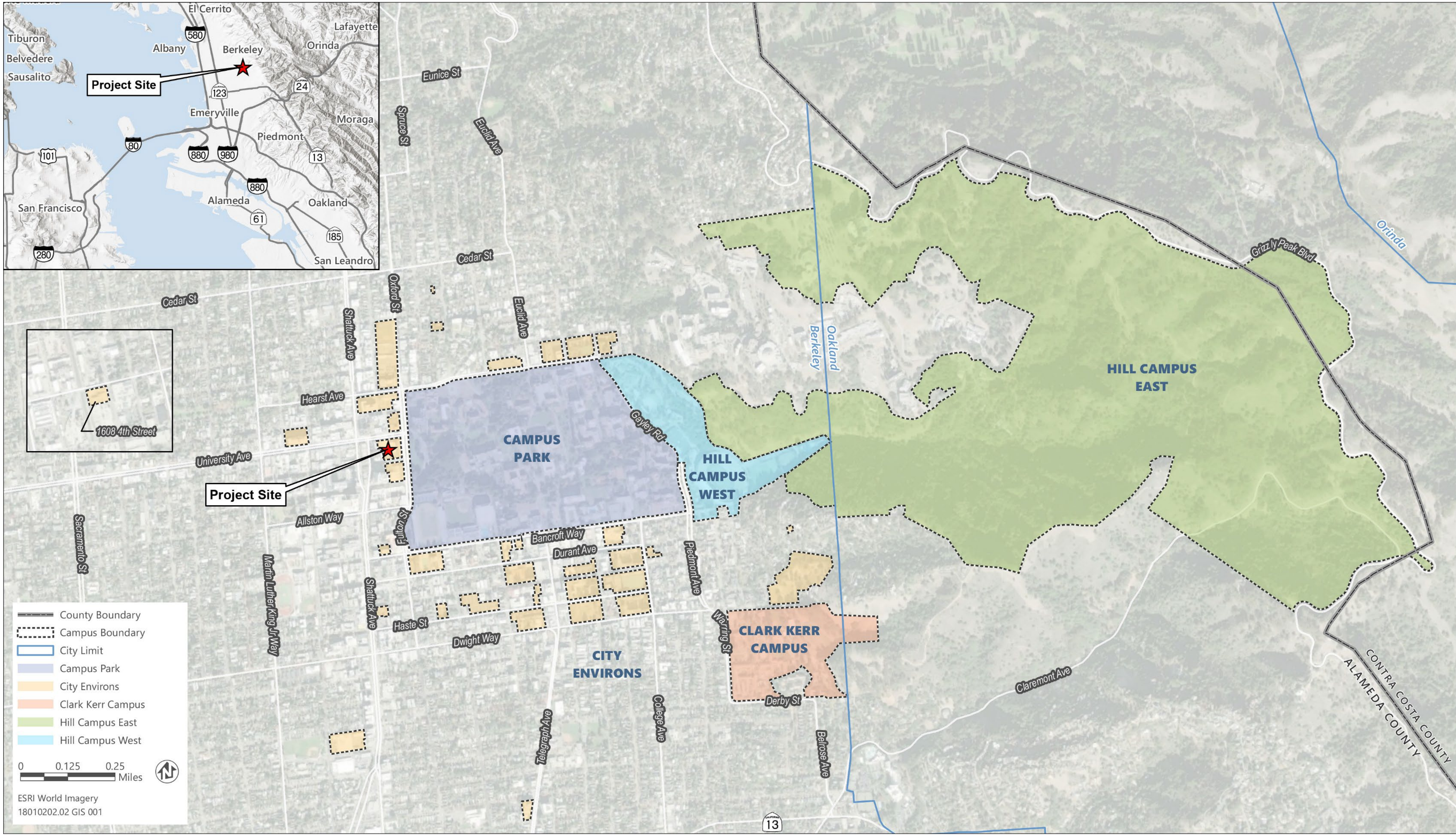
2.4.1 Existing Uses

The approximately 1.86-acre (73,000-square-foot) project site is irregularly shaped and is fully developed. The natural topography of the project site is relatively flat with an approximately 11-foot drop in slope from east to west. The site is currently occupied by UC Berkeley's University Hall, a surface parking lot, and two commercial buildings (2154–2160 University Avenue, known as the Martha E. Sell Building, and 2136–2140 University Avenue, known as the Ernest A. Heron Building) that were designated as City Landmarks by the City of Berkeley in 2004 (City of Berkeley 2023). The existing footprints of on-site structures are shown in Figure 2-3.

University Hall was constructed in 1959 and is approximately 145,090 gross square feet, with seven stories above ground and one story below ground. Prior to summer 2023, University Hall provided office and meeting space for UC Berkeley with a small component used for instructional and study space. The building is currently unoccupied. University Hall was evaluated for seismic performance in 2020 and has been determined to have a seismic performance rating of VI (Priority for Improvement) (UC Berkeley 2022).

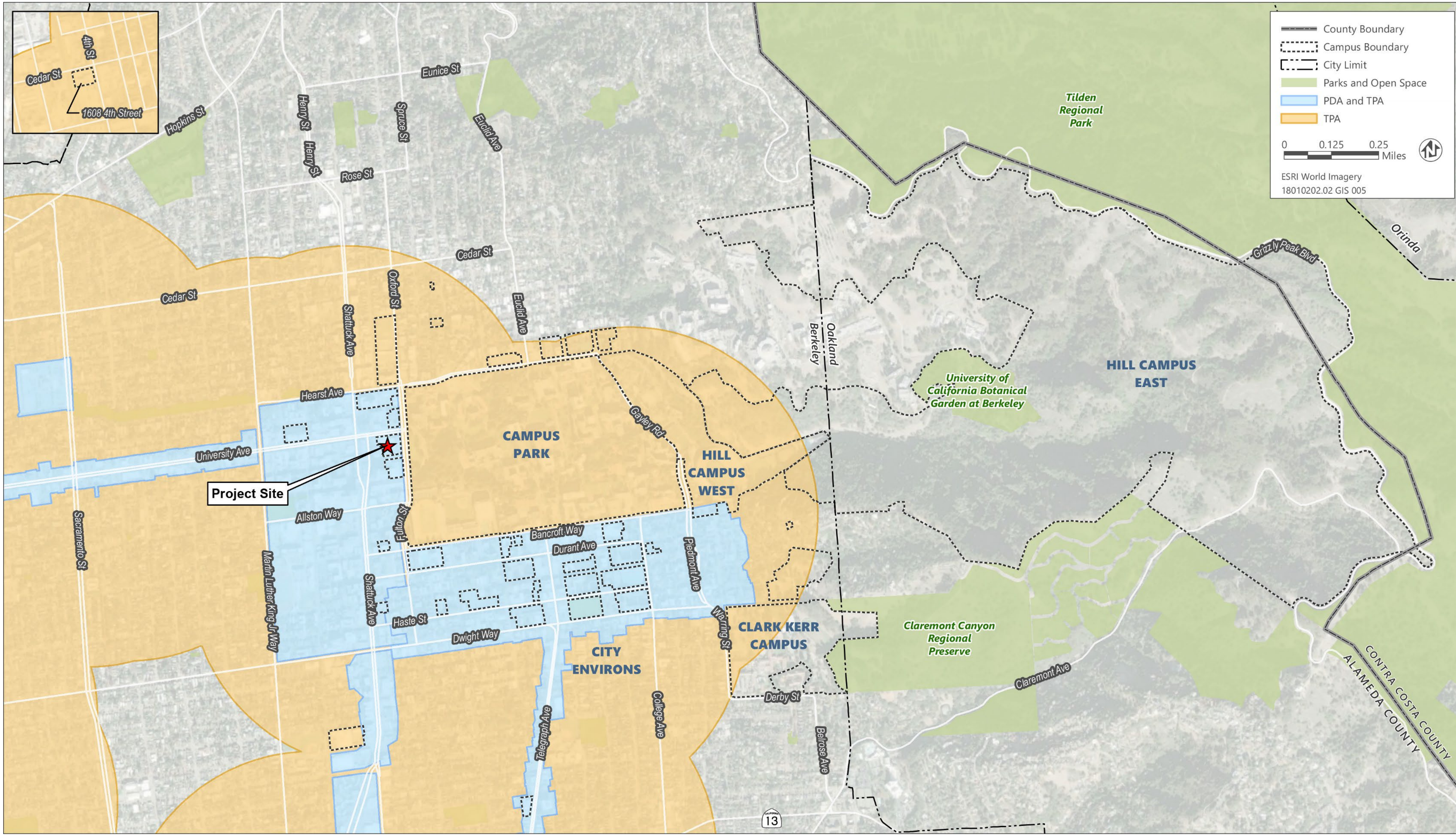
The Martha E. Sell Building was constructed in 1920 and is owned by the Regents. The building is approximately 16,523 gross square feet and is currently leased to third parties and UC affiliates. This two-story building contains three commercial units: 2154 and 2158 University Avenue (Build Group, Inc.), 2156 University Avenue (Simply Bowl), and 2160 University Avenue (Cupertino Electric, Inc.). Build Group, Inc. is the general contractor for the UC Berkeley Anchor Student Housing Project and is occupying the unit temporarily during construction of the housing project. Simply Bowl is a restaurant with seven employees on the ground floor of 2156 University Avenue. Only the Build Group, Inc., and Simply Bowl are currently operational in the building.

The Ernest A. Heron Building is approximately 5,000 gross square feet and is leased to third parties. The two-story building also contains three commercial units: 2136 University Avenue (Campus Dental Care), 2138 University Avenue (Instant Copying & Laser Printing), and 2140 University (Lucky House Thai Cuisine). Campus Dental Care is a medical office with four employees. Instant Copying & Laser Printing is a commercial printing company with one employee. Lucky House Thai Cuisine is a restaurant with four employees. All three businesses are operational and located on the ground floor along the building's frontage.



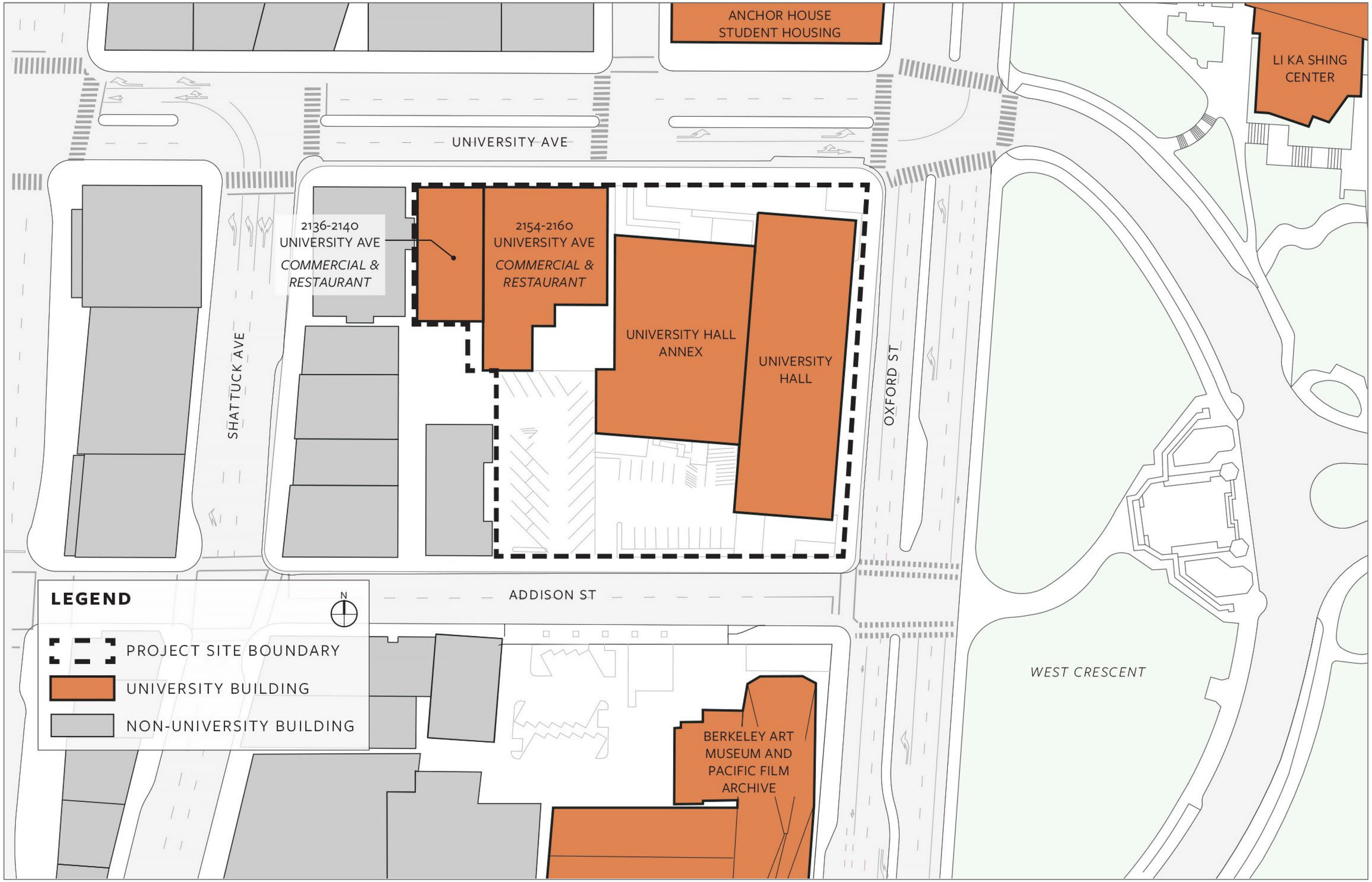
Source: Data provided by UC Berkeley in 2023; adapted by Ascent in 2023.

Figure 2-1 Regional Location



Source: Data provided by UC Berkeley and downloaded from CAL FIRE and MTC/ABAG in 2023; adapted by Ascent in 2023.

Figure 2-2 Priority Development Area and Transit Priority Area Zones in the City of Berkeley



Source: Image provided by UC Berkeley in 2024.

Figure 2-3 Existing Site Plan

2.4.2 Surrounding Uses

Located in a heavily urbanized portion of the City of Berkeley, the project site is surrounded by a mix of civic, residential, and commercial uses. The UC Berkeley's Anchor House Student Housing Project is currently under construction to the north of the project site across University Avenue, in the City Environs land use zone. The West Crescent portion of UC Berkeley's Campus Park, which serves as a gateway to the campus from the west, is located across Oxford Street to the east. To the south, the Berkeley Art Museum and Pacific Film Archive are located across Addison Street in the City Environs land use zone. To the west, residential and commercial office/retail uses border the project site.

2.5 PROJECT OBJECTIVES

The objectives for the project are to address critical programmatic needs, optimize land resources, and modernize infrastructure within the UC Berkeley campus. The basic project objectives are to achieve the following:

- Address critical programmatic needs:
  - Provide at least 450,000 gross square feet of modern and flexible life-science research and wet laboratory space to support UC Berkeley's academic mission, to expand its research enterprise, and to accelerate cutting-edge discovery and innovation in life sciences and climate research.
  - Create a multi-user site that allows for co-locating of UC Berkeley's life sciences and climate research programs in a manner that enables intellectual exchange, interdisciplinary discovery, and interaction and collaboration between academic programs and disciplines and that encourages collaboration in support of the University's public-service values and for positive societal impact.
  - Provide academic and research facilities in the City Environs adjacent to the Campus Park that can benefit from Downtown Berkeley amenities and proximity to other nearby UC research buildings, while still being accessible to academic and research functions on the Campus Park.
  - Create a new public-facing node for life sciences development that complements other life-science research hubs in the City of Berkeley and the East Bay by locating collaborative academic research space along University Avenue and Oxford Street, near the Campus Park and UC Berkeley's Innovative Genomics Institute Building, and with multiple and convenient transport options to other life-science hubs throughout Berkeley and the East Bay.
  - Create a mobility hub, including parking, to support the users of the site and that is integrated with the other multi-modal transportation systems in Downtown Berkeley and the UC Berkeley campus.
- Optimize campus land resources:
  - Provide a laboratory building located in the northern half of the site that is rectangular in dimension to enable efficient and flexible floor plates that will accommodate multiple users with a range of programmatic requirements, as well as adequate space for at grade vehicles, including a multi-bay loading dock with service access that accommodates large box trucks and parking for building occupants.
  - Balance UC Berkeley's need for modern academic and research facilities against preservation of the campus's extensive portfolio of notable historic landscapes and architecture by prioritizing the stewardship of, and allocation of public funds to, historic resources located on the Campus Park.
  - Provide a development envelope that maximizes site capacity, allows for signature buildings at a key campus gateway, and responds to the surrounding development context.
  - Develop a project in a location that provides site users easy access to existing and proposed multi-modal transportation facilities in Downtown Berkeley, so that they have efficient, sustainable, and safe campus access options.

  - Provide publicly-accessible open space on the site to provide space for informal collaboration between the building occupants and to enhance open space that serves the public to contribute positively to Downtown Berkeley.
  - Provide a project that accelerates revitalization in Downtown Berkeley by bringing additional employees and public services, and by enhancing the look of Downtown through attractive new buildings and landscaping.
  - Develop new research space on a UC Regent-owned site that does not reduce the ability for UC Berkeley to provide necessary housing for students, faculty, and staff, and that does not require relocation of existing critical academic functions.
  - Site and develop new research and educational buildings at a location that is currently underutilized or otherwise a candidate for demolition. Site new buildings in areas identified as potential future development areas supporting the proposed uses in the 2021 LRDP.
- Modernize campus infrastructure:
  - Provide facilities that meet or exceed the UC Berkeley Sustainability Plan and the UC Sustainable Practices Policy.
  - Address significant seismic, deferred maintenance, and other life-safety code deficiencies in aging buildings by demolishing and replacing them with new state-of-the-art facilities.
  - Upgrade infrastructure surrounding the project site, including ADA access, sidewalks, transit stops, and utilities, in a cost-effective manner.

2.6 PROJECT ELEMENTS

As described above, the project includes the removal of existing structures and redevelopment of the project site with two laboratory buildings and supporting parking. The proposed site plan is provided in Figure 2-4.

2.6.1 Laboratory Buildings

As part of the project, UC Berkeley would construct and operate two laboratory buildings, referred to as the South Building and the North Building (Figure 2-4). The buildings would include space for academic research in the fields of life sciences and climate research, offices, and other collaborative meeting spaces. Researchers, faculty, and students from across multiple disciplines would be users of the buildings. The laboratories would be designated as Biosafety Levels- (BSLs-) 1 and 2.[2] The project would not include BSL-3 or BSL-4 laboratories.[3] Both buildings would be fully powered by electricity and would not use fossil fuel except to power diesel-fueled emergency generators.

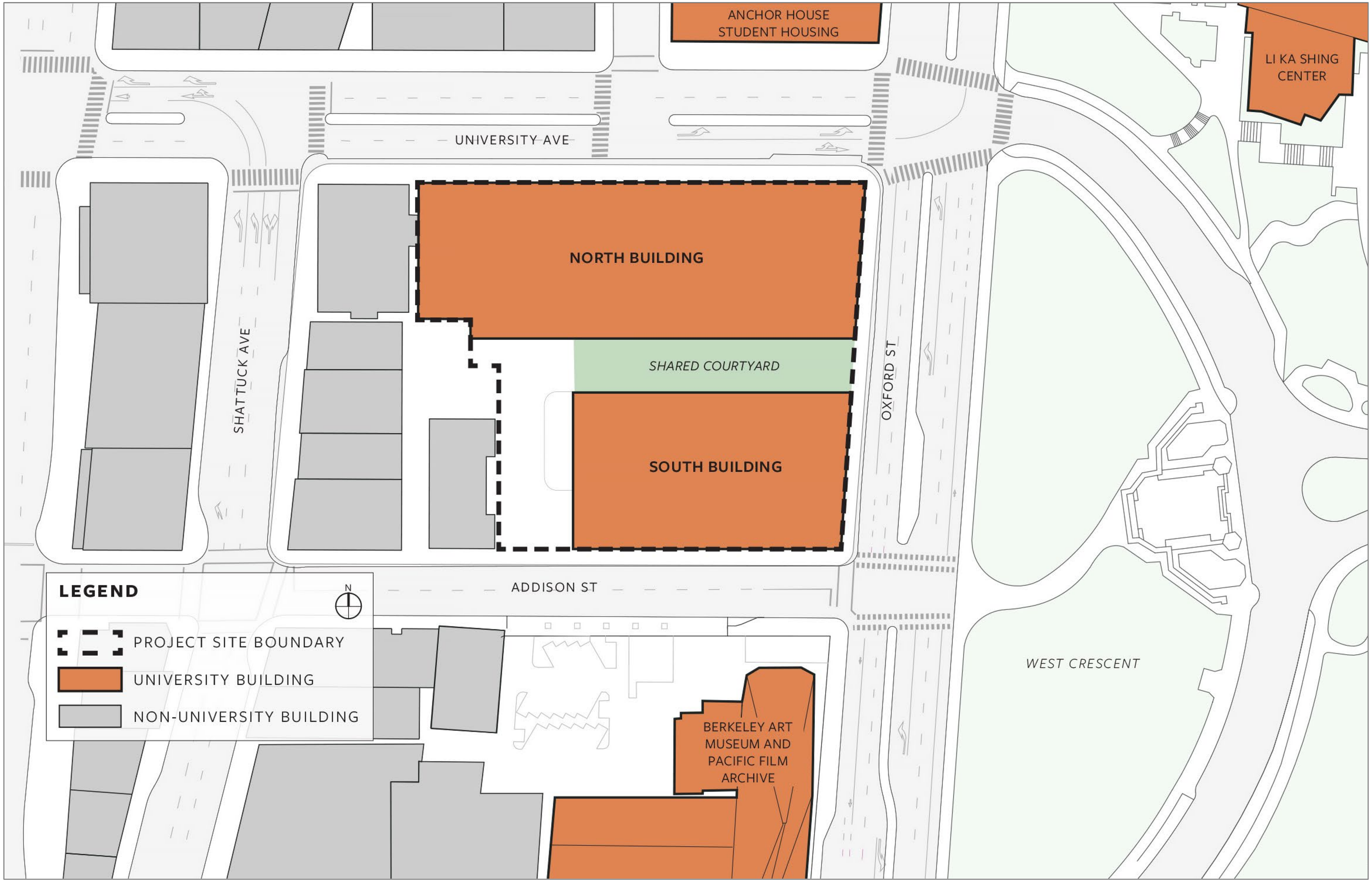
The South Building and North Building are anticipated to be operational in spring 2028 and in 2029, respectively. The buildings would be operational 24 hours a day, 7 days a week. The project would not result in UC Berkeley student population growth but would result in an increase in employment on the project site.

THE SOUTH BUILDING

The South Building would provide an approximately 176,000-gross-square-foot new laboratory building that would include five above-ground floors, a non-occupied mechanical space at the roof, and a below-grade basement.

2 BSL-1 applies to laboratory settings in which personnel work with low-risk microbes that pose little to no threat of infection in healthy adults. BSL-2 laboratories are used to study moderate-risk infectious agents or toxins that pose a risk if accidentally inhaled, swallowed, or exposed to the skin.

3 BSL-3 and BSL-4 are laboratories used to study infectious agents or toxins that may be transmitted through the air and cause potentially lethal infections and laboratories used to study microbes that can cause serious or lethal human or animal disease and are readily transmitted, respectively.



Source: Image provided by UC Berkeley in 2024.

Figure 2-4 Proposed Site Plan

The building would include wet and dry laboratory research and laboratory support space, research and administrative offices, meeting rooms and conference space, shared administrative support space and research space for other users. The ground floor would include public-serving uses along the University Avenue and/or Oxford Street frontages.

The roofline of the South Building would be approximately 100 feet above ground level at its southwest corner, and 92 feet above ground level on its east side, at Oxford Street. An approximately 20-foot-high non-occupied mechanical space would be located on the roof but would be set back from the façade and would not be visible from the street level. The building elevation at Oxford Street is shown in Figure 2-5.

Rooftop equipment, architectural screening and enclosures, and parapet walls would extend in varying places above the roofline up to a maximum total building height of 112 feet from Oxford Street. Site elevations in this vicinity range from approximately 208 feet above mean sea level to approximately 201 feet above mean sea level at these locations.

The building's primary entrance would be located on Oxford Street or Addison Street, most likely at the corner of Addison Street and Oxford Street. The South Building would provide space for permanent occupancy of up to 340 people.

Building loading and delivery access to the building would be via an existing driveway on Addison Street to loading docks located at the western end of the building (Figure 2-6).

THE NORTH BUILDING

The North Building would provide an approximately 310,000-gross-square-foot new laboratory building that would include wet and dry laboratory research and laboratory support space with the potential for a vivarium, research and administrative offices, meeting rooms, and conference space. The building would be up to 11 above-ground floors and include a non-occupied mechanical space at the roof, a below-grade basement, and an approximately 154,400-gross-square-foot garage, with up to four above-ground levels, comprising up to 350 vehicle parking spaces, within the 11-floor building. The North Building would also include roughly 5,000 gross square feet of ground-floor commercial space. The building would be rectangular to achieve a minimum length-to-width ratio of 2:1 for efficiency of operations.[4] Maintaining a rectangular shape for the North Building would also provide sufficient space for loading and parking on the ground floor.

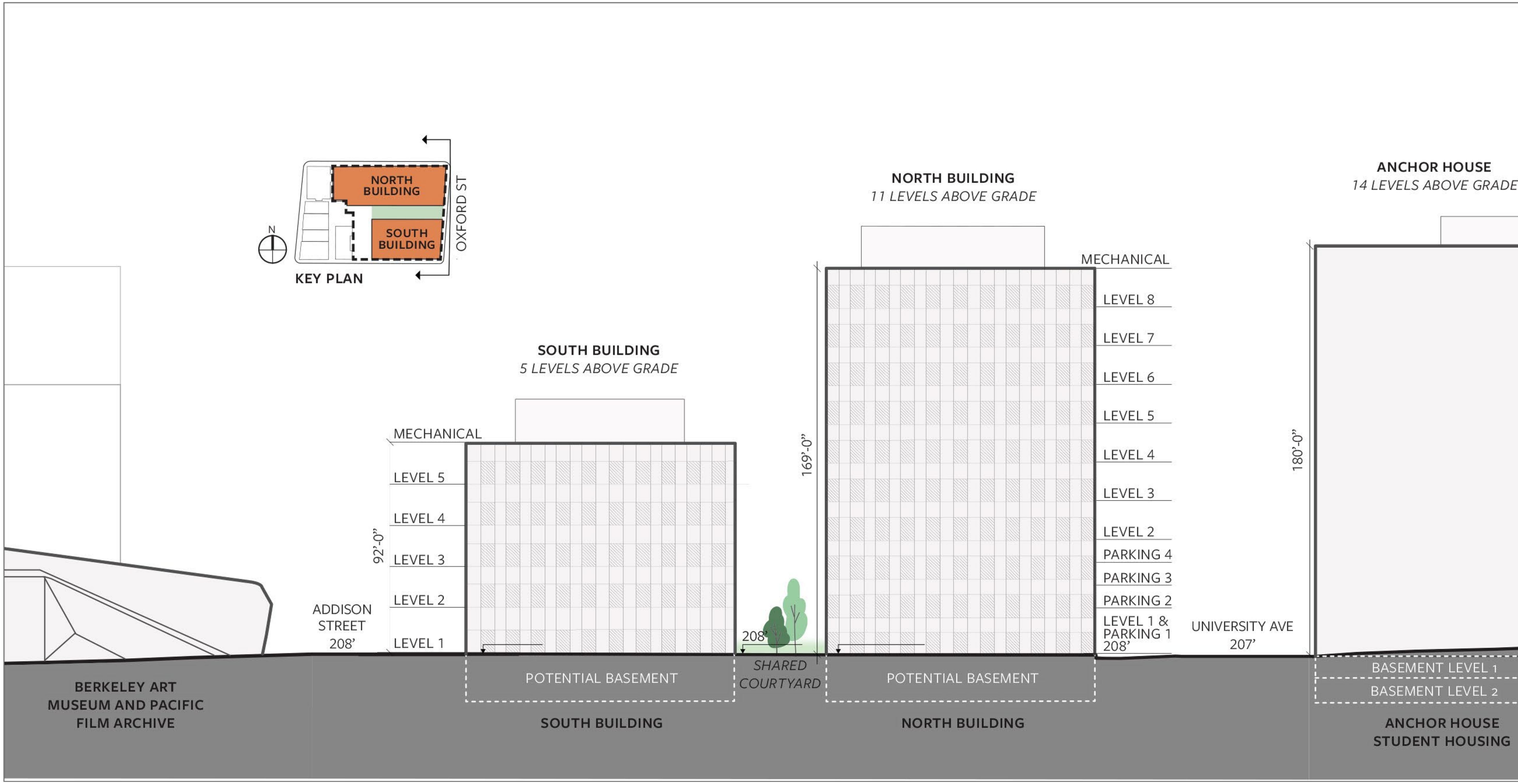
A 20- to 25-foot-high non-occupied mechanical space would be located on the roof but would be set back from the façade and would not be visible from the street level. Rooftop equipment, architectural screening and enclosures, and parapet walls would extend in varying places above the roofline up to an approximate maximum total building height of 189–194 feet from Oxford Street. The building elevation at Oxford Street is shown in Figure 2-5.

The building's primary entrance would be located on the east side along Oxford Street; an additional pedestrian access may be located at University Avenue to the north. The North Building would provide space for permanent occupancy of up to 750 people.

The parking garage and building loading would be accessed from University Avenue. The parking garage would be accessed from a vehicle ramp with entrance and egress circulation. Building loading access would be located adjacent to the parking garage vehicle ramp. Circulation is described below in Section 2.6.2 and shown in Figure 2-6.

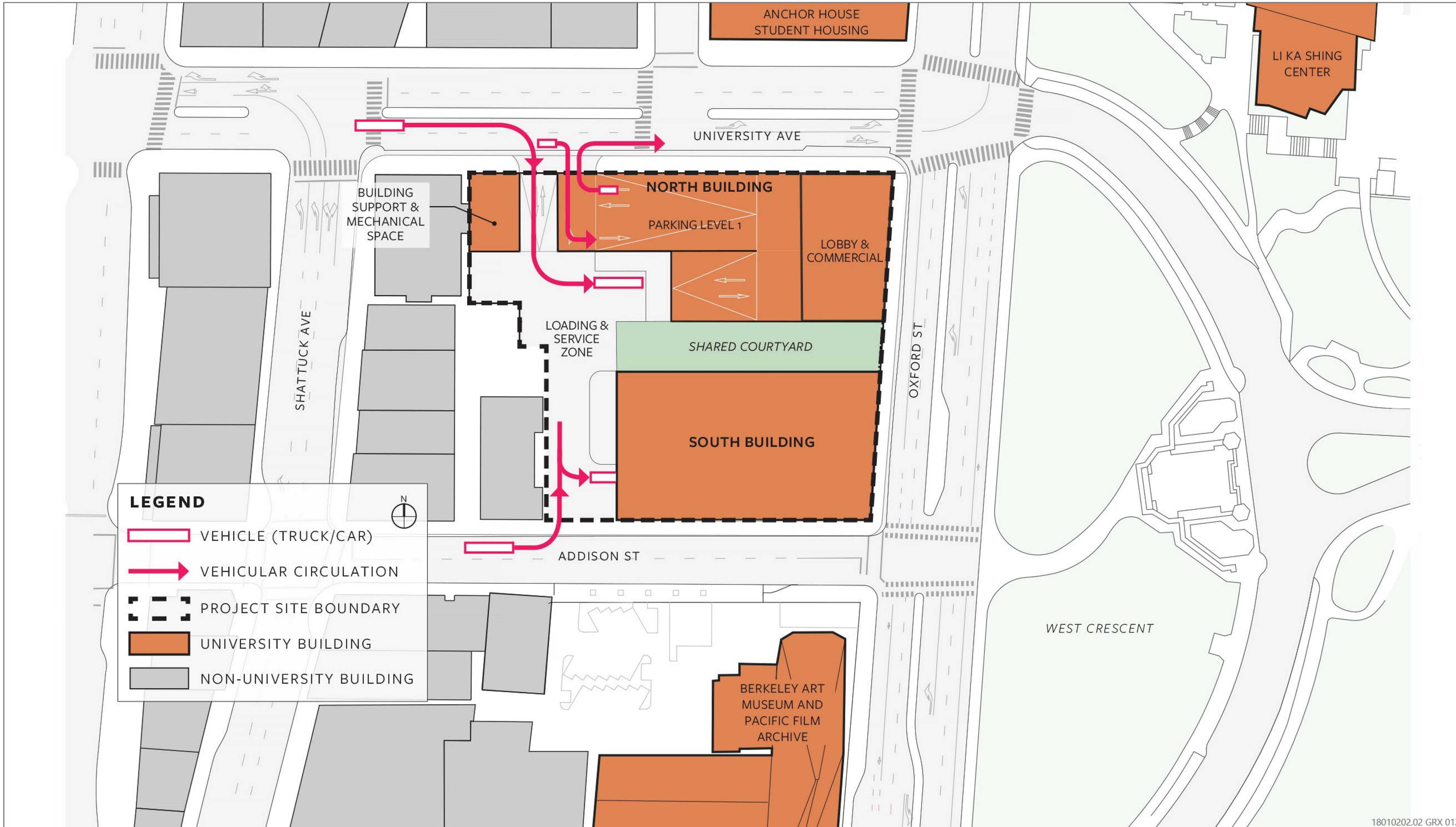
[4] When building width is reduced and the plan becomes square in proportion, the yield per floor is reduced. Stairs, shafts, and electrical rooms are still needed on each floor, and their size would not decrease dramatically with a change in configuration, so the efficiency, or usable space, per floor can drop quickly as the length is reduced. It also becomes less efficient to incorporate office spaces at either end of a square building, with labs in the middle. Decreasing the building width also would make it extremely difficult, if not impossible, to maintain both a loading dock and parking. For these reasons, the ideal configuration for lab buildings includes a 2:1 ratio at minimum.

This page intentionally left blank.



Source: Image provided by UC Berkeley in 2024.

Figure 2-5 Building Elevation at Oxford Street



Source: Image provided by UC Berkeley in 2024.

Figure 2-6 Proposed Circulation

2.6.2 Circulation

VEHICLE ACCESS AND PARKING

The South Building would provide loading and service access from Addison Street; service and delivery vehicles would turn into the loading and service yard and back into the loading dock. The parking garage in the North Building would be accessed from a vehicle ramp off University Avenue, which would provide both ingress and egress circulation. A pedestrian path with keycard access would be located adjacent to this vehicle ramp. The North Building's loading/service access would be located adjacent to the parking garage vehicle ramp, immediately to the west. Service and delivery vehicles would enter and exit via this access point, turning around in the loading and service yard adjacent to the loading dock. Both loading docks would include roll-up doors for security. The loading and service yard would be open between the South and North Buildings, although each building would have its own dedicated loading dock. Proposed circulation is shown in Figure 2-6 above. The parking garage would be open 24 hours a day, 7 days a week.

BICYCLE AND PEDESTRIAN ACCESS

Pedestrian pathways through the project site would meet UC Berkeley’s mobility and accessibility needs. Pedestrian entrances into the South Building would be from Addison Street and/or Oxford Street and into the North Building from Oxford Street and/or University Avenue. Secured side entrances to additional exit stairs would also be located off Addison Street and University Avenue. Sidewalks would surround the north, east, and south perimeter of the buildings, with pedestrian access to the various building components on all sides. Bicycle racks would be located along the sidewalks on three sides of the buildings. In addition, long-term secure bicycle parking spaces located in the parking garage would be available to building occupants and their visitors. Commercial components would provide access to each individual shop from street entrances.

2.6.3 Utilities, Landscape, and Lighting

UTILITIES CONNECTION AND IMPROVEMENTS

Water Supply

Water would be supplied to the project site by East Bay Municipal Utility District (EBMUD). EBMUD’s existing water mains in the roadways adjacent to the project site include a 12-inch pipeline underneath Oxford Street, a 6-inch pipeline underneath University Avenue, and a 10-inch pipeline underneath Addison Street. Domestic water would be supplied through one 8-inch pipe connecting to an existing water main underneath Oxford Street. Fire water service for each building would require a separate connection to the same water main through one 8-inch pipe. The fire water tank and fire pump room would be located in one of the lowest stories of each building.

Sanitary Sewer

Sanitary sewer services to both buildings would connect to the existing City of Berkeley sanitary sewer system. Two 10-inch sanitary waste pipes would connect to an existing sanitary sewer line underneath Oxford Street. Sewage flows through City pipes would be conveyed to EBMUD’s collection system, which would deliver it to EBMUD’s Main Wastewater Treatment Plant.

Stormwater

Implementing the project would result in approximately 7,000 square feet of pervious surfaces and approximately 74,000 square feet of impervious surfaces. This represents an approximately 8.6-percent net decrease in impervious surfaces over existing site conditions. Stormwater would be directed to the City of Berkeley’s storm drain system at the intersection of University Avenue and Walnut Street. Sidewalk surface runoff around the project site would be directed by the downward slope of the project site to the south and west to existing stormwater catch basins. In addition, a 12-inch storm drainage connection would be located on the southern side of each building.

Electricity

The two buildings would connect to Pacific Gas and Electric Company's existing electrical infrastructure currently servicing the surrounding area. Underground electrical infrastructure in the vicinity of the project includes electrical conduit and manholes located within Oxford Street and Addison Street. The project would be all-electric and would be supplied by 100-percent carbon-free electricity. Rooftop solar photovoltaics and backup battery storage may be provided through a future power purchase agreement. Each building would include appropriate on-site infrastructure to connect to the existing electrical system.

Telecommunications

Telecommunications and broadband services would be provided by connection to UC Berkeley's campuswide broadband system and existing utility providers in the area, such as AT&T, Comcast, or Sonic. Each building would include appropriate on-site infrastructure to connect to the existing telecommunication system.

Solid Waste

UC Berkeley provides solid waste collection and recycling services to the campus through Cal Zero Waste, which is housed in Facilities Services. The project would be required to implement zero waste practices to meet UC Berkeley's zero waste goal. Waste collection and disposal service for the project would be provided by Cal Zero Waste. Waste collection would occur daily from Monday through Friday.

STREETSCAPE AND LANDSCAPE

The project would include a linear-shaped courtyard, almost 40 feet wide and roughly 200 feet long, between the South and North Buildings. Access to the courtyard, which would provide landscaping and seating for building occupants, would also be open to the public during daylight hours. Moreover, the North Building would include a public passage to the courtyard from University Avenue. Building façades would be adjacent to the sidewalk on the northern, eastern, and southern sides and would not be set back from the sidewalks. The project would install streetscape features along all the northern, eastern, and southern sides of the site perimeter and sidewalks, including trees, bicycle racks, and trash receptacles. Three mature trees (a red maple and two tulip trees) would be removed for development, and nine new trees would be planted along the perimeter of the site; none of the trees are considered specimen trees, requiring replacement, per UC Berkeley's Specimen Tree Program. Landscaping would include native and/or adaptive and drought-resistant plant materials. Plantings would be drought-tolerant grasses, shrubs, and trees that, once established, are adapted to a climate with a dry summer and intermittent rain in the winter season.

LIGHTING AND GLARE

The source, intensity, and type of exterior lighting for the project site would be typical for user orientation and safety needs. All on-site lighting would be low-level illumination, downward facing, and shielded to reduce light spillover or glare. Interior lighting in the buildings would include varied lighting designs appropriate for the different spaces and in accordance with all applicable codes and standards, including energy codes and performance standards. All exterior surface and aboveground mounted fixtures would be sympathetic and complementary to the overall architectural theme. Fixtures would be selected to minimize effects of light pollution, with full cutoff and low-glare light distribution, and fixtures would be located beneath canopies and soffits to conceal upward light spill. Exterior lighting would be controlled by astronomical time clock and photocells, have dimming capability, and meet egress light levels where required by code. Street lighting in sidewalks around the project would conform to City of Berkeley and UC Berkeley standards. Glass would make up less than 50 percent of each façade of the building exterior. Bird safety measures would include low-reflectivity glass, avoidance of free-standing glass elements, exterior light pollution control, and interior lighting shutoffs during nighttime hours.

2.6.4 Sustainable Features

The project would include several sustainable project features. These include the potential for rooftop solar photovoltaics and a backup battery storage on the roof area of both buildings, and as previously stated, all landscaping would include native and/or adaptive and drought-resistant plant materials of similar water use and adapted to a dry summer and intermittent rain in the winter season. Furthermore, the project would comply with the UC Sustainable Practices Policy. The project would be designed to achieve or exceed the US Green Building Council's Leadership in Energy and Environmental Design^{TM} Gold certification and, consistent with the fossil fuel–free provisions of the policy, would incorporate electrification and omit natural gas for building heat and hot water generation.

2.7 PROJECT CONSTRUCTION

2.7.1 Construction Schedule

Construction is anticipated to start in summer 2024, beginning with demolition and site preparation for approximately 10 months; building construction would subsequently commence and last for 30–36 months. Construction activities would generally occur from 7:00 a.m. to 5:00 p.m. Monday through Friday with generally no construction at nighttime, over weekends, or on holidays. If extended weekday work hours or weekend or nighttime work is required, UC Berkeley would get approval from the City of Berkeley prior to conducting any nighttime work.

2.7.2 Site Preparation

Site preparation would involve demolition, grading, and trenching. Approximately 200,000 square feet of existing buildings and asphalt areas on the project site would be demolished. The existing University Hall steam pipe infrastructure beneath Oxford Street would be demolished. Trenching for new building utility connections (e.g., sewer, water, electric, and fiber) would be required. The entire 1.86-acre project site would be graded. Approximately 48,006 cubic yards of soil and 16,360 cubic yards of construction debris would be hauled off-site.

Typical equipment to be used for site preparation could include backhoes, excavators, concrete saws, graders, dozers, scrapers, and water trucks.

2.7.3 Building Construction

Construction of the buildings would occur after completion of site preparation. Construction activities would include constructing buildings, driveways, sidewalks, curbs, and gutters. Typical equipment to be used would include forklifts, backhoes, cranes, pile drivers, loaders, aerial lifts, generators, welders, cement mixers, rollers, pavers, and air compressors.

2.7.4 Staging

During site preparation and building construction, vehicles, equipment, and materials would be staged and stored on the project site. The construction site and staging areas would be clearly marked, and construction fencing would be installed to prevent disturbance and safety hazards. A combination of on- and off-site parking facilities for construction workers would be identified during site preparation and construction.

2.8 CONTINUING BEST PRACTICES

UC Berkeley currently implements continuing best practices (CBPs) to ensure that environmental impacts from development and ongoing UC Berkeley operations would be reduced and/or avoided to the greatest extent feasible. CBPs are implemented as part of proposed projects, where applicable, and/or as part of UC Berkeley's standard, ongoing operations. In some cases, CBPs reference existing regulatory requirements that have been determined to be the most effective and practical means of preventing or reducing environmental impacts. The current CBPs were recently updated as part of the 2021 LRDP EIR. The CBPs have been reviewed for their adequacy in reducing and/or avoiding impacts on the environment in the 2021 LRDP EIR.

The CBPs are listed where relevant in the impact analyses presented in Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures," to illustrate how they would help to reduce and/or avoid environmental impacts from the project. The specific CBPs that would be implemented as part of the project include those listed below. Other CBPs may also be relevant to the impact analysis but are implemented as part of ongoing operations, not as part of specific projects, such as the project. Appendix B provides a complete list of UC Berkeley CBPs from the 2021 LRDP EIR.

- CBP AES-1: New projects will as a general rule conform to the Physical Design Framework. While the guidelines in the Physical Design Framework would not preclude alternate design concepts when such concepts present the best solution for a particular site, UC Berkeley will not depart from the Physical Design Framework except for solutions of extraordinary quality.
- CBP AES-2: Major new campus projects will continue to be reviewed at each stage of design by the UC Berkeley Design Review Committee. The provisions of the LRDP, as well as project-specific design guidelines prepared for each such project, will guide these reviews.
- CBP AES-4: UC Berkeley will make informational presentations of major projects in the city environs of the Cities of Berkeley and Oakland, and the Clark Kerr Campus, to the relevant city commission(s) and board(s). Relevant commissions and boards, to be determined jointly by the Campus Architect and appropriate City Planning Director, may include the Berkeley Zoning Adjustments Board and Berkeley Landmarks Preservation Commission. Major projects in the Hill Campus East within the city of Oakland may also be presented to relevant City of Oakland boards or commissions, after consultation and mutual agreement between those agencies and UC Berkeley. Major projects may include new construction or redevelopment projects with substantial community interest as determined by UC Berkeley. Whenever a major project in the city environs or Clark Kerr Campus is under consideration, the Campus Architect may invite the appropriate city planning director or their designee to attend and comment on the project at the UC Berkeley Design Review Committee.
- CBP AES-6: Lighting for new development projects will be designed to include shields and cut-offs that minimize light spillage onto unintended surfaces and minimize atmospheric light pollution. The only exception to this principle will be in those areas where such features would be incompatible with the visual and/or historic character of the area.
- CBP AES-7: As part of UC Berkeley's design review procedures, light and glare will be given specific consideration and measures will be incorporated into the project design to minimize both. In general, exterior surfaces will not be reflective; architectural screens and shading devices are preferable to reflective glass.
- CBP AIR-1: UC Berkeley will continue to implement the same or equivalent transportation programs as currently exist, that strive to reduce the use of single-occupant and/or greenhouse gas emitting (internal combustion engine) vehicles by students, staff, faculty, and visitors to the UC Berkeley campus.
- CBP AIR-2: UC Berkeley will continue to comply with the current Bay Area Air Quality Management District basic control measures for fugitive dust control. The requirement to comply with the basic control measures will be identified in construction bids. The Bay Area Air Quality Management District's current basic control measures include:
  - Water all active construction areas at least twice daily, or as often as needed to control dust emissions. 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 will be used whenever possible.
  - Pave, apply water twice daily or as often as necessary to control dust, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.

  - 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).
  - Sweep daily (with water sweepers using reclaimed water if possible) or as often as needed all paved access roads, parking areas and staging areas at the construction site to control dust.
  - Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material.
  - Hydroseed or apply nontoxic soil stabilizers to inactive construction areas.
  - Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
  - Limit vehicle traffic speeds on unpaved roads to 15 miles per hour.
  - Replant vegetation in disturbed areas as quickly as possible.
- CBP AIR-3: UC Berkeley will continue to implement the following control measures to reduce emissions of diesel particulate matter and ozone precursors from construction equipment exhaust:
  - Equipment will be properly serviced and maintained in accordance with the manufacturer's recommendations.
  - Construction contractors will also ensure that all nonessential idling of construction equipment is restricted to five minutes or less, in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.
- CBP BIO-1: Avoid disturbance or removal of bird nests protected under the federal Migratory Bird Treaty Act and California Department of Fish and Game Code when in active use. This will be accomplished by taking the following steps.
  - If tree removal and initial construction is proposed during the nesting season (February 1 to August 31), a focused survey for nesting raptors and other migratory birds will be conducted by a qualified biologist within 14 days prior to the onset of tree and vegetation removal in order to identify any active nests on the site and surrounding area within up to 500 feet of proposed construction, with the distance to be determined by a qualified biologist based on project location. The site will be resurveyed to confirm that no new nests have been established if vegetation removal and demolition has not been completed or if construction has been delayed or stopped for more than seven consecutive days during the nesting season.
  - If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), tree and vegetation removal and building construction may proceed with no restrictions.
  - If bird nests are found, an adequate setback will be established around the nest location and vegetation removal, building demolition, and other construction activities shall be restricted within this no-disturbance zone until the qualified biologist has confirmed that birds have either not begun egg-laying and incubation, or that the juveniles from those nests are foraging independently and capable of survival outside the nest location. Required setback distances for the no-disturbance zone will be based on input received from the California Department of Fish and Wildlife and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone will be fenced with temporary orange construction fencing if construction is to be initiated on the remainder of the site.
  - A report of findings will be prepared by the qualified biologist and submitted to the UC Berkeley's Office of Physical & Environmental Planning for review and approval prior to initiation of vegetation removal, building demolition and other construction activities during the nesting season. The report will either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if vegetation removal and other construction activities are initiated during the non-nesting season and continue uninterrupted according to the above criteria.

- **CBP CUL-1:** UC Berkeley will follow the procedures of conduct following the discovery of human remains that have been mandated by Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98 and the California Code of Regulations Section 15064.5(e) (California Environmental Quality Act [CEQA]). According to the provisions in CEQA, if human remains are encountered at the site, all work in the immediate vicinity of the discovery shall cease and necessary steps to ensure the integrity of the immediate area shall be taken. The County Coroner shall be notified immediately. The Coroner shall then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner shall notify the California Native American Heritage Commission (NAHC) within 24 hours, who will, in turn, notify the person the NAHC identifies as the Most Likely Descendant (MLD) of any human remains. Further actions shall be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the NAHC is unable to identify an MLD, the MLD fails to make a recommendation within 48 hours after being notified, or the landowner rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner, the owner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance.
- **CBP GEO-1**: UC Berkeley will continue to comply with the California Building Code and the University of California Seismic Safety Policy.
- **CBP GEO-2**: Site-specific geotechnical studies will be conducted under the supervision of a California Registered Certified Engineering Geologist or licensed geotechnical engineer and UC Berkeley will incorporate recommendations for geotechnical hazard prevention and abatement into project design.
- **CBP GEO-3**: The UC Berkeley Seismic Review Committee will continue to review all seismic and structural engineering design for new and renovated existing buildings on campus.
- **CBP GEO-4**: UC Berkeley will continue to use site-specific seismic ground motions for analysis and design of campus projects. Site-specific ground motions provide more current geo-seismic data than the U.S. Geological Survey (USGS) and are used for performance-based analyses.
- **CBP GEO-9**: Campus construction projects must comply with the Campus Design Standards, which contain regulatory and other campus requirements for construction-phase and post-construction stormwater management.
- **CBP GEO-10**: In the event that a unique paleontological resource is identified during project planning or construction, the work will stop immediately, and the find will be protected until its significance can be determined by a qualified paleontologist. If the resource is determined to be a "unique resource," a mitigation plan will be formulated pursuant to guidelines developed by the Society of Vertebrate Paleontology and implemented to appropriately protect the significance of the resource by preservation, documentation, and/or removal, prior to recommencing activities. The plan will be prepared by the qualified paleontologist and submitted to the UC Berkeley project manager for review and approval prior to initiation or recommencement of construction activities in the area of effect.
- **CBP HAZ-1**: UC Berkeley will continue to implement the same (or equivalent) health and safety plans, programs, practices, and procedures related to the use, storage, disposal, or transportation of hazardous materials and wastes (including chemical, radioactive, and biohazardous materials and waste) during the LRDP planning horizon. These include, but are not limited to:
  - Requirements for safe transportation of hazardous materials
  - UC Berkeley Office of Environment, Health & Safety training programs and oversight
  - The Hazard Communication Program
  - Publication and promulgation of the Water Protection Policy, the drain disposal guidelines, the Wastewater Toxics Management Plan, and the Slug Control Plan
  - Requirements that laboratories have Chemical Hygiene Plans and a chemical inventory database

- The Aboveground Storage Tank Spill Prevention Control and Countermeasure Plan and monitoring of underground storage tanks
- Implementation of the hazardous waste disposal program and policies
- The Green Labs Program
- The Biosafety Program
- The Medical Waste Management Program
- The Laser Safety Program
- The Radiation Safety Program
- The Drain Disposal Restrictions

These programs may be subject to modification as regulations or UC Berkeley policies are developed or if the programs become obsolete through replacement by other programs that incorporate similar or more effective health and safety protection measures. However, any modifications must incorporate similar or more effective health and safety protection measures.

- CBP HAZ-2: UC Berkeley will continue to implement the same (or equivalent) programs related to laboratory animal use during the LRDP planning horizon, including, but not necessarily limited to, compliance with United States Public Health Service Regulations, the National Research Council Guide for the Care and Use of Laboratory Animals, and Animal Welfare Act regulations. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar or more effective health and safety protection measures.
- CBP HAZ-3: UC Berkeley will continue to implement the same (or equivalent) programs related to transgenic materials use during the LRDP planning horizon, including, but not necessarily limited to, compliance with the National Institute of Health Guidelines for Research Involving Recombinant DNA Molecules, United States Department of Agriculture requirements for open-field-based research involving transgenic plants, and requiring registration with the UC Berkeley Office of Environment, Health & Safety for all research involving transgenic plants. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar or more effective health and safety protection measures.
- CBP HAZ-4: UC Berkeley will continue to perform hazardous materials surveys prior to capital projects in existing UC Berkeley buildings. UC Berkeley will continue to comply with federal, State, and local regulations governing the abatement and handling of hazardous building materials and each project will address this requirement in all construction.
- CBP HAZ-5: UC Berkeley will continue to perform site histories and due diligence assessments of all sites where ground-disturbing construction is proposed, to assess the potential for soil and groundwater contamination resulting from past or current site land uses at the site or in the vicinity. The investigation will include review of regulatory records, historical maps and other historical documents, and inspection of current site conditions. UC Berkeley will act to protect the health and safety of workers or others potentially exposed should hazardous site conditions be found.
- CBP HYD-1: During the plan check review process and construction phase monitoring, UC Berkeley Office of Environment, Health & Safety will review each development project to determine whether project runoff would increase pollutant loading and verify that the proposed project complies with all applicable requirements (e.g., Regional Water Quality Control Board and Campus Design Standards requirements) and best management practices (e.g., those described in the California Stormwater Quality Association's Construction BMP Handbook).
- CBP HYD-2: UC Berkeley will continue implementing an urban runoff management program containing best management practices, as published in the Strawberry Creek Management Plan, and as developed through the Stormwater Permit Annual Reports completed for the Phase II municipal separate storm sewer system (MS4)

permit. UC Berkeley will continue to comply with the MS4 stormwater permitting requirements by implementing construction and post-construction control measures and best management practices required by project-specific Stormwater Pollution Prevention Plans (SWPPPs) and by the Phase II MS4 permit to control pollution. SWPPPs will be prepared by the project contractor as required to prevent discharge of pollutants and to minimize sedimentation resulting from construction and the transport of soils by construction vehicles.

- CBP HYD-3: UC Berkeley will maintain a campuswide educational program regarding safe use and disposal of facilities maintenance chemicals and laboratory chemicals to prevent the discharge of these pollutants to Strawberry Creek and campus storm drains.
- CBP HYD-4: Where feasible, parking will be built in covered parking structures and not exposed to rain to address potential stormwater runoff pollutant loads.
- CBP HYD-5: Landscaped areas of development sites will be designed to absorb runoff from rooftops and walkways. Open or porous paving systems will be included in project designs, where feasible, to minimize impervious surfaces and absorb runoff.
- CBP HYD-6: UC Berkeley will continue to develop and implement the recommendations of the Strawberry Creek Management Plan and its updates, and construct improvements as appropriate. These recommendations include, but are not limited to, minimization of the amount of land exposed at any one time during construction as feasible; use of temporary vegetation or mulch to stabilize critical areas where construction staging activities must be carried out prior to permanent cover of exposed lands; installation of permanent vegetation and erosion control structures as soon as practical; protection and retention of natural vegetation; and implementation of post-construction structural and non-structural water quality control techniques.
- CBP HYD-7: UC Berkeley will continue to review each development project, to determine whether rainwater infiltration to groundwater is affected. If it is determined that existing infiltration rates would be adversely affected, UC Berkeley will design and implement the necessary improvements to retain and infiltrate stormwater. Such improvements could include retention basins to collect and retain runoff, grassy swales, infiltration galleries, planter boxes, permeable pavement, or other retention methods. The goal of the improvement should be to ensure that there is no net decrease in the amount of water recharged to groundwater that serves as freshwater replenishment to Strawberry Creek. The improvement should maintain the volume of flows and times of concentration from any given site at pre-development conditions.
- CBP HYD-8: Dewatering, when needed, will be monitored and maintained by qualified engineers in compliance with the Campus Design Standards and applicable regulations.
- CBP HYD-10: For projects in the City Environs Properties that affect drainage systems or patterns, improvements will be coordinated with the City of Berkeley’s Public Works Department.
- CBP HYD-13: UC Berkeley will continue to manage runoff into storm drain systems such that the aggregate effect of projects implemented pursuant to the LRDP creates no net increase in runoff over existing conditions.
- CBP NOI-1: Mechanical equipment selection and building design shielding will be used, as appropriate, so that noise levels from future building operations would not exceed the City of Berkeley Noise Ordinance limits for commercial areas or residential zones as measured on any commercial or residential property in the area surrounding a project proposed to implement the LRDP. Controls typically incorporated to attain this outcome include selection of quiet equipment, sound attenuators on fans, sound attenuator packages for cooling towers and emergency generators, acoustical screen walls, and equipment enclosures.
- CBP NOI-2: UC Berkeley will require the following measures for all construction projects:
  - Construction activities will be limited to a schedule that minimizes disruption to uses surrounding the project site as much as possible. Construction outside the Campus Park will be scheduled within the allowable construction hours designated in the noise ordinance of the local jurisdiction to the full feasible extent, and exceptions will be avoided except where necessary. As feasible, construction equipment will be required to be muffled or controlled.

- The intensity of potential noise sources will be reduced where feasible by selection of quieter equipment (e.g., gas or electric equipment instead of diesel powered, low noise air compressors).
- Functions such as concrete mixing and equipment repair will be performed off-site whenever possible.
- Stationary equipment such as generators and air compressors will be located as far as feasible from nearby noise-sensitive uses.
- At least 10 days prior to the start of construction activities, a sign will be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours, as well as the telephone numbers of UC Berkeley's and contractor's authorized representatives that are assigned to respond in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, they will investigate, take appropriate corrective action, and report the action to UC Berkeley.
- During the entire active construction period and to the extent feasible, the use of noise-producing signals, including horns, whistles, alarms, and bells, will be for safety warning purposes only. The construction manager will use smart back-up alarms, which automatically adjust the alarm level based on the background noise level, or switch off back-up alarms and replace with human spotters in compliance with all safety requirements and laws.
- For projects requiring pile driving:
  - With approval of the project structural engineer, pile holes will be pre-drilled to minimize the number of impacts necessary to seat the pile.
  - Pile driving will be scheduled to have the least impact on nearby sensitive receptors.
  - Pile drivers with the best available noise control technology will be used. For example, pile driving noise control may be achieved by shrouding the pile hammer point of impact, by placing resilient padding directly on top of the pile cap, and/or by reducing exhaust noise with a sound-absorbing muffler.
  - Alternatives to impact hammers, such as oscillating or rotating pile installation systems, will be used where possible.

- CBP NOI-3: UC Berkeley will precede all new construction projects that are outside of the Campus Park, the Clark Kerr Campus, or adjacent to a non-UC Berkeley property with community notification, with the purpose of ensuring that the mutual needs of the particular construction project and of those impacted by construction noise are met, to the extent feasible.
- CBP PS-1: The University of California Police Department will continue its partnership with the City of Berkeley police department to review service levels in the City Environs Properties.
- CBP PS-2: UC Berkeley will continue its partnership with the Lawrence Berkeley National Laboratory, Alameda County Fire Department, Oakland Fire Department, and Berkeley Fire Department to ensure adequate fire and emergency service levels to UC Berkeley facilities. This partnership will include consultation on the adequacy of emergency access routes to all new UC Berkeley buildings. UC Berkeley will also continue to work closely with external fire management partners related to regional wildfire prevention, including the Hills Emergency Forum, Diablo Firesafe Council, and various neighborhood groups and internal interdisciplinary planning teams.
- CBP TRAN-1: UC Berkeley will implement bicycle, pedestrian, and transit access and circulation improvements as part of new building projects, major renovations, and landscape projects. Improvements will address the goal of increasing non-vehicular commuting and safety; improving access from adjacent campus or city streets and public transit; reducing multi-modal conflict; providing bicycle parking; and providing commuter amenities.
- CBP TRAN-4: UC Berkeley will continue to work with the City of Berkeley, AC Transit, and BART to coordinate transit access to new academic buildings, parking facilities, and campus housing projects, in order to accommodate changing locations or added demand.

- **CBP TRAN-5**: UC Berkeley will require contractors working on major new construction or major renovation projects to develop and implement a Construction Traffic Management Plan that reduces construction-period impacts on circulation and parking within the vicinity of the project site. The Construction Traffic Management Plan will address job-site access, vehicle circulation, bicycle and pedestrian safety, and be coordinated with the City of Berkeley Public Works Department when projects require temporary modifications to city streets.
- **CBP TRAN-6**: For each construction project, UC Berkeley will require the prime contractor to prepare a Construction Traffic Management Plan which will include the following elements:
  - Proposed truck routes to be used, consistent with the City truck route map.
  - Construction hours, including limits on the number of truck trips during the morning (AM) and evening (PM) peak traffic periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.), if conditions demonstrate the need.
  - Proposed employee parking plan (number of spaces and planned locations).
  - Proposed construction equipment and materials staging areas, demonstrating minimal conflicts with circulation patterns.
  - Expected traffic detours needed, planned duration of each, and traffic control plans for each.
  - Identifying bicycle and pedestrian detours and safety plan, including solutions to address impacts to accessible routes.
- **CBP TRAN-7**: UC Berkeley will manage project schedules to minimize the overlap of excavation or other heavy truck activity periods that have the potential to combine impacts on traffic loads and street system capacity, to the extent feasible.
- **CBP TRAN-8:** UC Berkeley will reimburse the City of Berkeley for its fair share of costs associated with damage to City streets from UC Berkeley construction activities, provided that the City adopts a policy for such reimbursements applicable to all development projects within Berkeley.
- **CBP USS-1**: For development that increases water demand, UC Berkeley will continue to evaluate the size of existing distribution lines as well as pressure of the specific feed affected by development on a project-by-project basis, and necessary improvements will be incorporated into the scope of work for each project to maintain current service and performance levels. The design of the water distribution system, including fire flow, for new buildings will be coordinated among UC Berkeley, the East Bay Municipal Utility District, and the City of Berkeley Public Works Department and Fire Department.
- **CBP USS-3**: UC Berkeley will continue to incorporate specific water conservation measures into project design to reduce water consumption and wastewater generation. This could include the use of special air-flow aerators, water-saving shower heads, flush cycle reducers, low-volume toilets, weather-based or evapotranspiration irrigation controllers, drip irrigation systems, and the use of drought resistant plantings in landscaped areas, and collaboration with the East Bay Municipal Utility District to explore suitable uses of recycled water.
- **CBP USS-4**: UC Berkeley will analyze water and sewer systems on a project-by-project basis to determine specific capacity considerations for both UC Berkeley systems and off-site municipal systems in the planning of any project proposed under the LRDP.
- **CBP USS-5**: Payments to service providers to help fund wastewater treatment or collection facilities will conform to Section 54999 of the California Government Code, including, but not limited to, the following provisions:
  - Fees will be limited to the cost of capital construction or expansion.
  - Fees will be imposed only after an agreement has been negotiated by UC Berkeley and the service provider.
  - The service provider must demonstrate the fee is nondiscriminatory: i.e. the fee must not exceed an amount determined on the basis of the same objective criteria and methodology applied to comparable nonpublic users, and must not exceed the proportionate share of the cost of the facilities of benefit to the entity property being charged, based upon the proportionate share of use of those facilities.

The service provider must demonstrate the amount of the fee does not exceed the amount necessary to provide capital facilities for which the fee is charged.

- **CBP USS-6**: UC Berkeley will continue to implement the Zero Waste requirements of the UC Sustainability Policy designed to reduce the total quantity of campus solid waste that is disposed of in landfills.
- **CBP USS-7**: In accordance with the CalGreen Code, and as required for Leadership in Energy and Environmental Design certification, contractors working for UC Berkeley will be required under their contracts to report their solid waste diversion according to UC Berkeley's waste management reporting requirements.
- **CBP WF-1:** UC Berkeley will continue to comply with the California Public Resources Code Section 4291, which mandates firebreaks of 100 feet around buildings or structures in, upon, or adjoining any mountainous, forested, or brush- or grass-covered lands.
- **CBP WF-3:** UC Berkeley will continue to plan and implement programs to reduce risk of wildland fires, including plan review and construction inspection programs that ensure that its projects incorporate fire prevention measures.
- **CBP WF-4:** UC Berkeley will continue to plan and collaborate with other agencies through participation in the Hills Emergency Forum.

2.9 REQUIRED PERMITS AND APPROVAL

This document serves two primary purposes. First, the Regents will use this document to evaluate the environmental implications of approving the project. Second, this document may be used as a source of information by responsible and/or trustee agencies with permitting or approval authority over the project. The following agencies may be required to issue permits or approve certain aspects of the project:

- **The Regents or Its Designee.** Project design, project approval, and CEQA approval.
- **State Water Resources Control Board (responsible agency).** Coverage under nontraditional small municipal separate storm sewer system (MS4), general construction, and industrial stormwater permits.
- **Bay Area Air Quality Management District (BAAQMD) (responsible agency).** Authority to construct and permit to operate for any stationary sources (e.g., generators and fume hoods) of air contaminant emissions. BAAQMD would also process other permits required from the California Air Resources Board and the US Environmental Protection Agency.
- **City of Berkeley (responsible agency).** Potential approval of roadway, bicycle path, sidewalk improvements within City right-of-way.

This page intentionally left blank.

3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

This section describes the organization of this Draft EIR and the environmental setting, assumptions, and methodology of the impact analysis. There are 16 subchapters that make up this Draft EIR and evaluate the direct and indirect environmental impacts of the project. The cumulative environmental impacts analysis is contained in Chapter 4, "Cumulative Impacts," of this Draft EIR.

INTRODUCTION

As required by the State CEQA Guidelines (California Code of Regulations Section 15126.2), this Draft EIR identifies and focuses on the significant direct and indirect environmental effects of the project. Short-term effects are generally those associated with construction, and long-term effects are generally those associated with operation of the project. This chapter addresses the environmental setting, environmental impacts and mitigation measures associated with the project in relation to the following resource topics:

- Section 3.1, "Aesthetics";
- Section 3.2, "Air Quality";
- Section 3.3, "Biological Resources";
- Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources";
- Section 3.5, "Energy";
- Section 3.6, "Geology and Soils";
- Section 3.7, "Greenhouse Gas Emissions and Climate Change";
- Section 3.8, "Hazards and Hazardous Materials";
- Section 3.9, "Hydrology and Water Quality";
- Section 3.10, "Land Use and Planning";
- Section 3.11, "Noise and Vibration";
- Section 3.12, "Population, Employment, and Housing";
- Section 3.13, "Public Services and Recreation";
- Section 3.14, "Transportation";
- Section 3.15, "Utilities and Service Systems"; and
- Section 3.16, "Wildfire."

ANALYSIS CONTENTS

Sections 3.1 through 3.16 follow the same general format:

"Regulatory Setting" presents the applicable University, federal, and state laws, regulations, plans, and policies that are relevant to each environmental topic being discussed. UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. Therefore, UC Berkeley does not include local plans, policies, or regulations in the "Regulatory Setting" sections in the following technical sections unless UC Berkeley expressly uses a local plan, policy, or regulation as a threshold or standard of significance (e.g., noise standards) or if UC Berkeley determines that local plans, policies or regulations provide relevant context for the assessment of environmental impacts.

"Environmental Setting" presents the existing environmental conditions on the project site and the surrounding area as appropriate, in accordance with Section 15125 of the State CEQA Guidelines. The discussions of the environmental setting focus on information relevant to the issue under evaluation. The extent of the environmental setting area evaluated differs among resources depending on the locations of where impacts would be expected. For example, air quality impacts are assessed for the air basin (macro-scale) as well as the project site vicinity (micro-scale), whereas aesthetics impacts are assessed for the project site vicinity only.

"Environmental Impact Analysis and Mitigation Measures" identifies the thresholds of significance used to determine the level of significance of the environmental impacts for each resource topic, in accordance with the State CEQA Guidelines (Sections 15126, 15126.2, and 15143). The thresholds of significance used in this Draft EIR are primarily based on the checklist presented in Appendix G of the State CEQA Guidelines, best available data, applicable regulatory standards of relevant public agencies, and professional judgment.

A summary impact statement precedes a more detailed discussion of the environmental impact. The significance of each impact is then determined by evaluating the physical changes in the environmental setting that would be caused by implementation of the project and analyzing those effects against the identified threshold. This includes the analysis, rationale, and substantial evidence upon which conclusions are drawn. The determination of the impact's level of significance is shown in **bold** text. A "less than significant" impact is one that would not result in a substantial adverse change in the physical environment. A "potentially significant" impact or "significant" impact is one that would result in a substantial adverse change in the physical environment. Both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation. Mitigation measures are identified, as feasible, to avoid, minimize, rectify, reduce, or compensate for significant or potentially significant impacts, in accordance with the State CEQA Guidelines Section 15126.4. Unless otherwise noted, the mitigation measures presented are recommended in this Draft EIR for consideration by UC to adopt as conditions of approval.

Mitigation measures are not required for effects that are determined to be less than significant. Where feasible mitigation for a potentially significant impact is available the mitigation measures are presented. Each identified mitigation measure is labeled with the same letter convention to correspond with the number of the impact that would be mitigated by the measure (e.g., Mitigation Measure 3.1-1 for Impact 3.1-1). Following the mitigation measure, the measure's effectiveness at reducing the impact is described and compared again against the identified threshold to determine the level of significance after mitigation. Where sufficient feasible mitigation is not available to reduce an impact to a less-than-significant level, or where UC Berkeley may lack the ability or jurisdiction to ensure that the mitigation is implemented when needed, the impact is identified as remaining "significant and unavoidable." Significant and unavoidable impacts are also summarized in Chapter 5, "Other CEQA Considerations."

Where an existing law, regulation, or permit specifies mandatory and prescriptive actions about how to fulfill the regulatory requirement and would avoid an impact or maintain it at a less-than-significant level, the environmental protection afforded by the regulation is considered before determining impact significance.

References associated with the parenthetical references found throughout Sections 3.1 through 3.16 can be found in Chapter 8, "References," organized by section number.

Terminology Used in This EIR

This EIR uses the following terminology to describe environmental effects of the project:

No Impact: This means that there is no change from existing conditions, and no mitigation measures needed.

Less-than-Significant Impact: An impact is considered less than significant when it, either on its own or with the incorporation of regulatory compliance, does not exceed the defined thresholds of significance (and no mitigation is required).

Significant Impact or Potentially Significant Impact: A project impact is significant if there is a substantial adverse change in the physical environment. Significant impacts are identified by the evaluation of project effects in the context of specified significance criteria. Mitigation measures and/or project alternatives are identified to reduce significant effects on the environment where feasible. A potentially significant impact is a potentially substantial adverse change in the environment. Additional information would be analyzed regarding whether an impact may occur and its extent. In these instances, if a substantial adverse change is reasonably foreseeable, the impact is determined to be potentially significant. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact. Mitigation measures and/or project alternatives are identified to reduce potentially significant effects on the environment where feasible.

Significant and Unavoidable Impact: A project impact is significant and unavoidable if it is a substantial adverse change in the environment that cannot be feasibly avoided or mitigated to a less-than-significant level. If a lead agency proposes to approve a project with significant and unavoidable impacts, it must adopt a statement of overriding considerations to explain its actions (State CEQA Guidelines Section 15093[b]).

Mitigation Measures: State CEQA Guidelines (Section 15370) define mitigation as:

a) avoiding the impact altogether by not taking a certain action or parts of an action;

b) minimizing impacts by limiting the degree of magnitude of the action and its implementation;

c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or

e) compensating for the impact by replacing or providing substitute resources or environments.

RESOURCE AREAS WITH IMPACTS FOUND NOT TO BE SIGNIFICANT

Under CEQA and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when they are not significant (Public Resources Code Section 21002.1[e]; State CEQA Guidelines Sections 15128 and 15143). Based on a review of the potential effects of the project and as summarized below, UC Berkeley determined that agriculture and forestry resources and mineral resources do not require detailed evaluation in this Draft EIR.

Agriculture and Forestry Resources

The project site is located in an urbanized area within Downtown Berkeley. The project site is fully developed and is currently occupied by the UC Berkeley's University Hall, surface parking, and two commercial buildings. The project site does not contain any lands associated with a Williamson Act contract or designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, forest land, or timberland. Therefore, the project would have no impact on agriculture and forestry resources.

Mineral Resources

The project site is located in an urbanized area within Downtown Berkeley. The City of Berkeley has no active mineral extraction areas due to its long-established urbanized character (City of Berkeley 2002). There are no significant mineral deposits present or likely to be present within or in the vicinity of the project site. Therefore, implementation of the project would have no impact on mineral resources.

This page intentionally left blank.

3.1 AESTHETICS

This section evaluates the potential for the project to affect aesthetic and visual resources. It describes the visual setting of the project site and evaluates the impacts that could occur to visual resources as a result of implementing the project. Potential visual (i.e., context) impacts on historic resources are addressed in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," of this EIR.

Comments related to aesthetics and visual resources received in response to the notice of preparation (NOP) expressed concern about preservation of aesthetic value related to the on-site historic buildings. Additionally, comments were received that expressed concern regarding shadows that may be cast on publicly available open space on the UC Berkeley campus as a result of implementing the project. Although the issue of shade and shadow can be an issue of concern for the users or occupants of certain land uses in the immediate vicinity of new development, such as the project, the effects of shade and shadow are not physical impacts on the environment as defined by CEQA. Furthermore, shade and shadow studies are not required by any UC or UC Berkeley project environmental evaluation or approval procedures. Therefore, consideration of the effects of shade and shadow are outside the scope of this CEQA analysis and not addressed further herein.

The NOP and the comments received on the NOP are provided in Appendix A.

3.1.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to aesthetics, light, and glare are applicable to the project.

STATE

California Scenic Highway Program

The California Department of Transportation manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of the land adjacent to designated scenic highways. The state laws governing the Scenic Highway Program are found in California Streets and Highways Code Section 260 et seq.

California Building Code

The State of California provides a minimum standard for building design through Title 24, California Building Standards Code, of the California Code of Regulations. The California Building Code (CBC) is Part 2 of Title 24. The CBC is updated on a 3-year cycle. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the state Building Standards Commission. The CBC includes standards for outdoor lighting that are intended to reduce light pollution and glare by regulating light power and brightness, shielding, and sensor controls.

California Public Resources Code Section 21099

California Public Resources Code (PRC) Section 21099, formerly Senate Bill 743, passed in 2013, made changes to CEQA for projects located in transit-oriented development areas. Among these changes are that a project's aesthetic impacts are no longer considered significant impacts on the environment if the project is a residential, mixed-use residential, or employment center project and if the project is located on an infill site in a Transit Priority Area.

This change was implemented to help the state achieve greenhouse gas reductions while prioritizing jobs and housing. The project site is located in Priority Development Areas and Transit Priority Areas (Figure 2-2). Priority Development Areas and Transit Priority Areas provide an implementing framework for Plan Bay Area, the guiding framework for transportation and land use planning throughout the San Francisco Bay Area, coordinated by the regional planning agencies, the Association of Bay Area Governments, and the Metropolitan Transportation Commission. Therefore, in these areas where projects are infill and a residential, mixed-use residential, or employment center project, pursuant to PRC Section 21099(d), aesthetics impacts shall not be considered significant environmental impacts.

Although the project meets the PRC Section 21099 definition of "employment center" because it is in a Transit Priority Area and on property zoned for commercial uses with a floor area ratio of no less than 0.75, this EIR nonetheless takes a conservative approach to the analysis of overall visual impacts and evaluates potential impacts on visual resources in this Section and also evaluates potential visual impacts on historic resources in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources."

UNIVERSITY OF CALIFORNIA

UC and UC Berkeley Design Review

UC capital projects require review before approval for design, cost, site, seismic safety, and environmental impact. This process includes several procedures required for capital improvement projects. The UC's Policy for Independent Design and Cost Review of Building Plans was established to maintain the quality of design of UC construction projects, and project review may focus on the compatibility and appropriateness of a project's design in its setting (UC 1985). For the UC Berkeley campus, the UC Berkeley Design Review Committee (DRC) provides advice to the campus architect regarding historic preservation and design of UC Berkeley buildings and spaces. The UC Berkeley DRC is made up of design professionals and faculty from the disciplines of architecture, landscape architecture, urban design and planning, and historic preservation (UC Berkeley 2023).

UC Berkeley Physical Design Framework

UC requires every campus to have a physical design framework. The UC Berkeley Physical Design Framework provides comprehensive design guidance to create a coherent architectural image and identity, particularly with respect to exterior design and materials. It focuses primarily on the Campus Park and UC Berkeley–owned sites in the City Environs land use zone. The Campus Park occupies approximately 180 acres and is bounded to the north by Hearst Avenue, to the east by Gayley Road and Piedmont Avenue, to the south by Bancroft Way, and to the west by Oxford and Fulton Streets. UC-owned properties are also located in the City Environs land use zone, which comprises 70 acres of land, mostly concentrated in the City of Berkeley's Southside neighborhood and Downtown area (Figure 2-1). The following strategies describe the desired approach to campus character in the City Environs land use zone (UC Berkeley 2021):

- Strategy CE-1: Maintain a consistent campus image across all campus sites.
  - Develop a consistent campus image and character through capital projects' public realm elements, such as building aesthetics, landscape and open space, and other site improvements.
- Strategy CE-2: Respond to surrounding context and consider new facilities within the context of the campus as a whole.
  - Complement and contribute to the character of the existing context and public realm to the greatest extent feasible, while accommodating University program needs.
  - Acknowledge and consider the City of Berkeley's adopted plans, design guidelines, and other regulatory context for development in the City Environs, to the greatest extent feasible.
  - Strengthen overall campus cohesiveness by improving physical and programmatic connectivity between individual sites in the City Environs and the Campus Park.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to make lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes such as the CBC, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. UC Berkeley's Campus Design Standards contain construction specifications to guide design and ensure that new construction and renovation projects at UC Berkeley use continuing best practices (CBPs), which are discussed below, and are integrated with the existing campus. They are administered by the Campus Building Department and apply to all construction projects sponsored by the UC. The Campus Design Standards include requirements for building materials, lighting, glass and glazing, screening, planting, and more. They largely adapt and build from other applicable regulations, such as the CBC. The Campus Design Standards are updated every 3 years to incorporate updates to the CBC.

In addition to providing lighting that complies with the CBC, Illuminating Engineering Society light levels, the California Energy Code, and applicable UC policies, such as the UC Sustainability Practices Policy, the Campus Design Standards include these requirements for exterior lighting (UC Berkeley 2020):

- The campus goal for exterior lighting is to promote safety and create visibility by creating layers of light as well as reducing light pollution and energy consumption.
- Light fixtures shall generally include cut-off shields as needed to prevent light trespass into neighboring off-campus areas; however, some trespass may be allowable in lower-density areas, such as through glades and natural areas, where minimal light spill enhances safety.
- Pedestrian and bicycle parking area lighting shall be downlit.

UC Berkeley Continuing Best Practices

UC Berkeley applies CBPs relevant to aesthetics as part of the project approval process. CBPs that would be implemented as part of the project are identified in Chapter 2, "Project Description," and in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR. Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts later in this section, in Section 3.1.3, "Impact Analysis and Mitigation Measures."

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of aesthetic impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and do not provide context for the assessment of aesthetics impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.1.2 Environmental Setting

EXISTING VISUAL SETTING

Visual Character

UC Berkeley properties are scattered throughout the City of Berkeley north, west, and south of the Campus Park. These properties form the City Environs land use zone of the UC Berkeley campus. Most of the properties in the City Environs land use zone are located within one-quarter mile of the Campus Park, with many buildings located along Hearst Avenue bordering the Campus Park to the north, Oxford Street bordering the Campus Park to the west, and between Bancroft Way and Dwight Way south of the Campus Park. Much of these areas are densely developed with a mix of residential, commercial, mixed-use, and institutional uses, which lends to its varied visual character. There is a wide range of old and new development, and the height of development in this zone ranges between one and 10 stories.

The project site is located in the City Environs land use zone and is bounded by University Avenue to the north, Oxford Street to the east, and Addison Street to the south (Figures 2-1 and 2-3). The site is entirely developed with University Hall, a surface parking lot, the Martha E. Sell Building, and the Ernest A. Heron Building. In terms of the height of on-site structures, University Hall is seven stories tall, whereas the Martha E. Sell Building and the Ernest A. Heron Building are each one story tall. Both the Martha E. Sell and the Ernest A. Heron Buildings are City landmarks as designated by the City's Landmarks Preservation Commission.

The area surrounding the project site is also largely developed. UC Berkeley's Anchor House Student Housing Project is located north of the project site across University Avenue. The Anchor House Student Housing Project (currently under construction) will be a 14-story residential building for students. East of the project site, a portion of UC Berkeley's Campus Park, known as the West Crescent, presents a wide lawn and numerous trees and serves as a primary gateway to the UC Berkeley campus. The Berkeley Art Museum and Pacific Film Archive are located across Addison Street south of the project site. Residential and commercial developments ranging in height from three to seven stories are located west of the project site; these properties are under the jurisdiction of the City of Berkeley.

Scenic Views and Vistas

A scenic view is a high-quality visual environment experienced beyond an observer's immediate surroundings. Scenic views are often available along trails and roads. For a hiker or roadway traveler, a scenic view would include not only the trail or road but also the terrain immediately surrounding the trail or road. No scenic views are available from the project site because urbanized development is located to the north, west, and south, and mature trees, rising terrain, and on-campus development are present to the east.

Scenic vistas are broad, long-range scenic views that can be described as panoramic and having exceptional landscape-scale scenic quality. Sometimes, scenic vistas are recognized by public agencies through designation with protective policies in land management plans or placement of special destinations for viewers, such as an elevated vista point.

There are no scenic vistas in the vicinity of the project site. Scenic vistas are primarily located on the Hill Campus in the UC Berkeley campus. The elevation of the Hill Campus East provides panoramic westward views toward the San Francisco Bay, with the City of San Francisco and the Golden Gate Bridge visible on the horizon. In particular, there are a number of scenic vistas off Grizzly Peak Boulevard, such as the Grizzly Peak Vista Point and the Grizzly Peak Boulevard Overlook, as well as views offered from the Lawrence Hall of Science and from fire roads in this zone. The Hill Campus East is located approximately 0.5 mile east of the project site. Views of the Hill Campus East from the area surrounding the project site are obscured by vegetation, topography, and development, including on-campus development, the existing University Hall on the project site, and adjacent development in the City of Berkeley.

Scenic Resources within a State Scenic Highway

The project site is not located near (i.e., within 2 miles of or visible from) a designated state scenic highway. The closest designated state scenic highway is State Route (SR) 24, which is approximately 2.4 miles south/southeast of the project site (Caltrans 2023).

Light and Glare

Light pollution refers to all forms of unwanted light in the night sky, including glare, light trespass, sky glow, and overlighting. Views of the night sky are an important part of the natural environment. Excessive light and glare can be visually disruptive to humans and nocturnal animal species. Generally, it takes the form of street lighting along major streets and highways and nighttime illumination of commercial buildings, shopping centers, and industrial buildings. Light spillage from residential areas is usually screened by trees. More significant sources of light and glare on the UC Berkeley campus include locations associated with nighttime events where a larger amount of lighting is necessary, such as at sport fields, including California Memorial Stadium in the Hill Campus West and Edwards Stadium and

Evans Diamond in the Campus Park. Typically, nighttime lighting and glare generated by these venues are temporary and occur only during a limited number of evenings per year when events are scheduled.

The project site is located in an urban area surrounded by residential, commercial, and institutional buildings. Sources of light and glare in the vicinity of the project site include primarily building exterior and interior lighting, street lighting, and vehicle headlights.

3.1.3 Impact Analysis and Mitigation Measures

METHODOLOGY

The analysis of impacts related to aesthetics and visual resources focuses on the potential for substantial adverse effects on a scenic vista, substantial degradation of scenic resources within a state scenic highway, degradation of existing visual character or quality, and the creation of a new sources of substantial light or glare. It is based on information obtained from publicly available sources and widely used visual assessment guidelines. The analysis of potential impacts related to aesthetics and visual resources is limited to public views, which are defined as exterior locations accessible by the general public. Accordingly, this analysis considers public views of the project site from exterior locations. In determining the level of significance, the analysis assumes that the project would comply with all applicable laws, ordinances, and regulations.

THRESHOLDS OF SIGNIFICANCE

An impact on aesthetics and visual resources would be significant if implementation of the project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

ISSUES NOT DISCUSSED FURTHER

Scenic Vistas

In general, the term "vista" implies an expansive, long-distance view, usually from an elevated point or open area. A scenic vista is one such view—one that possesses visual and aesthetic qualities of high value to the community. Scenic vistas can provide views of natural features or significant structures or buildings. The project site is located in a heavily developed and urban setting, is not located at an elevated point or in open space, and does not contain remarkable scenery or views or natural areas that would be considered contributing to a scenic vista. The UC Berkeley Campanile (also known as the Sather Tower) is located approximately 0.5 mile to the east of the project site. The Campanile is approximately 307 feet tall, which is at least 113 feet taller than the proposed North Building (up to 194 feet including the mechanical rooftop equipment and screening). Due to the distance and height difference between the Campanile and the proposed North Building and the uphill location of the Campanile compared to the project site, the potential increase in building height would not affect the view of the Campanile from Downtown Berkeley. No designated scenic vistas are visible from the project site, and the project site is not located in a scenic vista. Thus, implementing the project would not adversely affect a scenic vista. This impact is not discussed further.

Scenic Resources within a State Scenic Highway

The project site is located in an urban area. No rock outcroppings are found in the vicinity of the site. Urban landscaping on the project site includes large street trees along University Avenue and Oxford Street. The project would require removing three of these street landscaping trees located on the northern edge of the project site. These trees are tree species used for landscaping (i.e., red maple and tulip tree) and are not considered scenic resources or specimen trees. The project would also replace the removed trees with nine new trees along the perimeter of the project site. As discussed in Chapter 2, "Project Description," the Martha E. Sell Building and the Ernest A. Heron Building were designated as City landmarks by the City of Berkeley in 2004. Both buildings would be removed as part of the project.

The project site is not located near a designated state scenic highway. The closest designated state scenic highway is SR 24, which is approximately 2.4 miles south/southeast of the project site (Caltrans 2023). There are no views of the project site from SR 24 because of the distance and intervening topography. In addition, the two one-story City landmark buildings are surrounded by buildings that are at least three stories tall on all four sides. These two buildings are not visible from SR 24. Therefore, no impacts related to substantially damaging scenic resources, including rock outcroppings and historic buildings, within a state scenic highway would occur. This impact is not discussed further.

IMPACT ANALYSIS

Impact 3.1-1: Implementing the project would not result in a conflict with applicable zoning and other regulations governing scenic quality.

The project is located on UC Berkeley property. As discussed in Section 3.1.1, "Regulatory Setting," above, UC Berkeley is constitutionally exempt from local regulations whenever using property under its control in furtherance of its educational purposes. Although UC Berkeley is the only agency with land use jurisdiction over the project, UC Berkeley has committed to review and consider the City of Berkeley's adopted planning and zoning documents for projects located within the Downtown Area Plan or the Southside Area Plan as part of its 2021 settlement agreement with the City. Discussion related to the 2021 settlement agreement is included in Section 3.10, "Land Use and Planning." The project would be required to undergo UC Berkeley design review to ensure that the project would comply with the UC Berkeley Physical Design Framework and the Campus Design Standards. As described in Chapter 2, "Project Description," UC Berkeley would implement the aesthetics (AES) CBPs listed below as part of the project:

- **CBP AES-1:** New projects will as a general rule conform to the Physical Design Framework. While the guidelines in the Physical Design Framework would not preclude alternate design concepts when such concepts present the best solution for a particular site, UC Berkeley will not depart from the Physical Design Framework except for solutions of extraordinary quality.
- **CBP AES-2:** Major new campus projects will continue to be reviewed at each stage of design by the UC Berkeley Design Review Committee. The provisions of the LRDP [Long Range Development Plan], as well as project-specific design guidelines prepared for each such project, will guide these reviews.
- **CBP AES-4:** UC Berkeley will make informational presentations of major projects in the city environs of the Cities of Berkeley and Oakland, and the Clark Kerr Campus, to the relevant city commission(s) and board(s). Relevant commissions and boards, to be determined jointly by the Campus Architect and appropriate City Planning Director, may include the Berkeley Zoning Adjustments Board and Berkeley Landmarks Preservation Commission. Major projects in the Hill Campus East within the City of Oakland may also be presented to relevant City of Oakland boards or commissions, after consultation and mutual agreement between those agencies and UC Berkeley. Major projects may include new construction or redevelopment projects with substantial community interest as determined by UC Berkeley. Whenever a major project in the city environs or Clark Kerr Campus is under consideration, the Campus Architect may invite the appropriate city planning director or their designee to attend and comment on the project at the UC Berkeley Design Review Committee.

These CBPS are designed to reduce impacts to visual resources through the review process for new projects by ensuring adherence to UC Berkeley objectives for preserving important existing visual resources. Through implementation of the UC Berkeley design review process and CBPs AES-1, AES-2, and AES-4, UC Berkeley would ensure that the project would be designed in accordance with applicable UC Berkeley regulations (e.g., UC Berkeley Physical Design Framework and Campus Design Standards), which would preserve existing scenic quality. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-2: The project would not create a new source of substantial light or glare which would adversely affect day or nighttime views of the area.

Implementation of the project involves developing two new laboratory buildings on the project site. The two buildings would be operational 7 days a week and 24 hours a day, whereas University Hall is now vacant and the businesses within the two commercial buildings are operational Monday through Sunday 8:30 a.m. to 10:00 p.m. Therefore, the project would increase the amount of light at nighttime on-site compared to the existing conditions. Project implementation would also introduce new potential sources of glare, such as new building materials, and driveways that could be potential new sources of glare from vehicle headlights. The project would be required to use controls to minimize light spillage and glare in accordance with UC Berkeley's Campus Design Standards. Applying these standards would ensure that light fixtures would include cut-off shields to prevent light trespass and would be downlit for pedestrian and bicycle parking areas and that, in general, exterior lighting is designed to reduce light pollution and energy consumption while creating a safe and visible campus. Lighting would also be designed in accordance with other applicable standards, such as the CBC, which includes standards for light power and brightness, shielding, and sensor controls to reduce light pollution and glare.

In addition, as described in Chapter 2, "Project Description," UC Berkeley would implement the following CBPs as part of the project (see Appendix B for a complete list of UC Berkeley CBPs):

- **CBP AES-6:** Lighting for new development projects will be designed to include shields and cut-offs that minimize light spillage onto unintended surfaces and minimize atmospheric light pollution. The only exception to this principle will be in those areas where such features would be incompatible with the visual and/or historic character of the area.
- **CBP AES-7:** As part of UC Berkeley's design review procedures, light and glare will be given specific consideration and measures will be incorporated into the project design to minimize both. In general, exterior surfaces will not be reflective; architectural screens and shading devices are preferable to reflective glass.

Potential light and glare from the proposed building materials would be similar in character to those already experienced in the area. The parking garage in the North Building would include exterior walls on all levels, which would block or obscure vehicle headlights from surrounding areas. Interior garage lighting would be designed to provide sufficient lighting to meet the safety and security needs of users and lighting requirements contained in the UC Berkeley Campus Design Standards but would be limited to the interior of the garage to limit glare from spilling outside of the structure. While headlights from vehicles entering and leaving the parking garage would be visible during the evening hours, such lighting sources would be typical for the existing urbanized setting and would not be anticipated to result in a new source of substantial light. Therefore, adherence to the UC Berkeley Campus Design Standards and implementation of applicable CBPs would ensure that implementing the project would not result in a substantial source of light or glare. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.2 AIR QUALITY

This section identifies local air quality conditions in the San Francisco Bay Area Air Basin (SFBAAB), as well as regulatory requirements pertaining to air quality; estimates the air pollutant emissions generated by implementation of the project; and describes potential direct and indirect impacts from implementation of the project. Mitigation is presented, as necessary, to reduce significant air quality impacts to the extent feasible. Detailed calculations, modeling inputs, and results can be found in Appendix C.

No comment letters regarding air quality were received in response to the notice of preparation (NOP). The NOP and the comments received on the NOP are provided in Appendix A.

3.2.1 Regulatory Setting

Air quality at the project site is regulated through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policymaking, education, and a variety of programs. The regulations identified below are applicable to the project.

FEDERAL

US Environmental Protection Agency

The US Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments were made by Congress in 1990. EPA's air quality efforts address criteria air pollutants, ozone precursors, and hazardous air pollutants (HAPs). EPA regulations concerning these categories of pollutants are presented in greater detail below.

Criteria Air Pollutants

CAA required EPA to establish National Ambient Air Quality Standards (NAAQS) for six common air pollutants found throughout the US referred to as criteria air pollutants. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. Primary standards, as shown in Table 3.2-1, protect public health with an adequate health margin for safety. Secondary standards protect public welfare from adverse effects, including those related to effects on soils, water, crops, vegetation, human-made materials, animals, wildlife, weather, visibility, and climate. Because ozone is most often formed in the atmosphere as a secondary pollutant from its precursors, nitrogen oxides (NO_X) and reactive organic gases (ROG), these precursor compounds are subject to regulation as a means of reducing ambient ozone concentrations in compliance with the NAAQS.

CAA also required each state to prepare a State Implementation Plan (SIP) for attaining and maintaining NAAQS. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.2-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a, b]	National (NAAQS)[c] Primary[b, d]	National (NAAQS)[c] Secondary[b, e]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (147 µg/m^3)	Same as primary standard
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	Same as primary standard
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	—	Same as primary standard
	24-hour	50 µg/m^3	150 µg/m^3	Same as primary standard
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
	24-hour	—	35 µg/m^3	Same as primary standard
Lead [f]	Calendar quarter	—	1.5 µg/m^3	Same as primary standard
	30-Day average	1.5 µg/m^3	—	—
	Rolling 3-Month Average	–	0.15 µg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	25 µg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

[a] California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the US Environmental Protection Agency for further clarification and current federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2016.

Toxic Air Contaminants and Hazardous Air Pollutants

Toxic air contaminants (TACs), or in federal parlance, HAPs, are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute effects, such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.2-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology—MACT standards. These standards are authorized by Section 112 of the 1970 Clean Air Act and the regulations are published in 40 CFR Parts 61 and 63.

STATE

California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). CCAA, which was adopted in 1988, required CARB to establish California Ambient Air Quality Standards (CAAQS) (Table 3.2-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporates a margin of safety to protect sensitive individuals.

CCAA requires that all local air districts in the state endeavor to attain and maintain CAAQS by the earliest date practical. CCAA specifies that local air districts should focus attention on reducing the emissions from transportation and area-wide emission sources and provides districts with the authority to regulate indirect sources.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (AB 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has formally identified over 200 substances and groups of substances as TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Hot Spots Act (AB 2588) requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a health risk assessment (HRA) if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

AB 617 of 2017 is a statewide strategy that emphasizes local plans to reduce emissions. AB 617 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for GHG emissions. AB 617 imposes a new state-mandated local program to address non-vehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and TACs. The bill requires CARB to identify high-pollution areas and directs air districts to focus air quality improvement efforts through adoption of community emission reduction programs within these identified areas. Currently, air districts review individual sources and impose emissions limits on emitters based on best available control technology, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring community-wide air quality assessment and emission reduction planning.

CARB identified particulate emissions from diesel-fueled engines, diesel particulate matter (diesel PM), as toxic air contaminants in August 1998. Following its identification and pursuant to AB 1807, CARB determined the need and degree to further control diesel PM. With the participation of local air districts, industry, and interested public, CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In September 2000, CARB adopted the Diesel Risk Reduction Plan, which recommends many control measures to reduce the risks associated with diesel PM and achieve a goal of 75 percent PM reduction by 2010 and 85 percent by 2020. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan and other regulatory programs, it is estimated that by 2035, emissions of diesel PM will be less than half of those in 2010 (CARB 2023). CARB's 2022 Advanced Clean Fleets regulation will also lead to reduction in diesel PM through the transition of medium- and heavy-duty trucks to become fully electric by 2045. Additionally, CARB's 2022 amendments to the 2004 Transport Refrigeration Unit (TRU) Airborne Toxic Control Measure increases the stringency of TRU $PM_{2.5}$ and requires the electrification of diesel-powered TRU trucks by 2029. Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

UNIVERSITY OF CALIFORNIA

The University of California Office of the President's (UCOP) sustainable practice policies and UC Berkeley's Sustainability Plan have air quality emissions co-benefits. The following planning initiatives are also applicable to air quality emissions generated at UC Berkeley.

UC Sustainable Practices Policy

In 2003, the UCOP adopted a comprehensive policy of detailed guidelines for Green Building Design and Clean Energy Standards (UC Sustainable Practices Policy), including an annual sustainability reporting requirement. This policy has been revised several times. The most recent version became effective in July 2023 and commits the UC to implementing actions intended to minimize the UC's impact on the environment and reduce its dependence on nonrenewable energy. The policy covers the areas of green building design, clean energy, climate action, sustainable transportation, sustainable building and laboratory operations for campuses, zero waste, sustainable procurement, sustainable foodservices, sustainable water systems, sustainability at UC health, general sustainability performance assessment, health and wellbeing, anti-racism, diversity, equity, and inclusion (UC Berkeley 2023).

UC Berkeley Sustainability Plan

The UC Berkeley Sustainability Plan (2020 Sustainability Plan) is an update to UC Berkeley's Carbon Neutrality Planning Framework. The UC Berkeley Sustainability Plan guides future work on campus relative to UC Berkeley's carbon neutrality goals. The 2020 Sustainability Plan provides a clear structure to articulate the vision, goals, and corresponding strategies for the campus to become more sustainable and align with systemwide UCOP Sustainability Practices Policy Changes (UC Berkeley 2020). The 2020 Sustainability Plan also integrates UC Berkeley–specific goals that exceed the UCOP policies, including climate and resiliency strategies for the UC Berkeley campus (see Chapter 3.7, "Greenhouse Gas Emissions and Climate Change").

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. Key sections of the design standards relevant to air quality include regulatory requirements in compliance with the Bay Area Air Quality Management District (BAAQMD) rules, the federal Clean Air Act, and the California Health and Safety Code Division 26 through standard best management practices related to demolition, construction, and operational activities, which release emissions of fugitive dust, aerosols, mist, smoke, odors, and gaseous pollutants.

UC Berkeley Continuing Best Practices

UC Berkeley applies continuing best practices (CBPs) relevant to air quality as part of the project approval process. CBPs that would be implemented as part of the project are identified in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts later in this section, in Section 3.2.3, "Impact Analysis and Mitigation Measures." A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

REGIONAL

Bay Area Air Quality Management District

The project site is located in the City of Berkeley, Alameda County. BAAQMD maintains and manages air quality conditions in SFBAAB, including Alameda County, through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of BAAQMD includes the preparation of plans and programs for the attainment of the NAAQS and CAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. BAAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA and CCAA.

Projects located in SFBAAB are subject to BAAQMD's rules and regulations. The following rules and regulations are applicable to the project:

- **Regulation 2, Rule 1, General Permit Requirements.** This rule includes criteria for issuance or denial of permits, exemptions, and appeals against decisions of the Air Pollution Control Officer and BAAQMD actions on applications.
- **Regulation 6, Rule 1, General Requirements.** This rule limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions, and opacity.
- **Regulation 7, Odorous Substances.** Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person or facility must meet all limitations of this regulation but meeting such limitations shall not exempt such person or facility from any other requirements of BAAQMD, state, or national law. The limitations of this regulation are not applicable until BAAQMD receives odor complaints from 10 or more complainants within a 90-day period, alleging that a person or facility has caused odors perceived at or beyond the property line of such person or facility and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence. When the limits of this regulation become effective, as a result of citizen complaints described above, the limits remain effective until such time as no citizen complaints have been received by BAAQMD for 1 year. The limits of this regulation become applicable again if BAAQMD receives odor complaints from five or more complainants within a 90-day period. BAAQMD staff

investigate and track all odor complaints it receives, make attempts to visit the site and identify the source of the objectionable odor, and assist the owner or facility in finding a way to reduce the odor.

CCAA requires that all local air districts in the state endeavor to achieve and maintain CAAQS in their region by the earliest practical date. It specifies that local air districts should focus attention on reducing the emissions from transportation and areawide emission sources and provides districts with the authority to regulate indirect sources. To achieve CAAQS, BAAQMD prepares and updates air quality plans on a regular basis. The air quality plans published by BAAQMD and other local air districts in the state are incorporated into California's SIP strategy and meet CAA requirements.

For state air quality planning purposes, SFBAAB is classified as a serious nonattainment area with respect to the 1-hour ozone standard. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that BAAQMD update its Clean Air Plan every three years to reflect progress in meeting NAAQS and CAAQS and to incorporate new information regarding the feasibility of control measures and new emission inventory data. BAAQMD's record of progress in implementing previous measures must also be reviewed. BAAQMD prepared these plans in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments. On April 19, 2017, BAAQMD adopted the most recent revision to the Clean Air Plan, titled the "2017 Clean Air Plan: Spare the Air, Cool the Climate" (BAAQMD 2017). This plan serves to:

- define a vision for transitioning the region to a post carbon economy needed to achieve 2030 and 2050 greenhouse gas reduction targets;
- decrease emissions of air pollutants most harmful to Bay Area residents, such as particulate matter, ozone, and TACs;
- reduce emissions of methane and other potent climate pollutants; and
- decrease emissions of carbon dioxide by reducing fossil fuel combustion.

Although offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and BAAQMD. BAAQMD's Regulation 7 ("Odorous Substances"), discussed above, regulates odors.

On April 20, 2022, the BAAQMD Board of Directors adopted the 2022 CEQA Guidelines, which present the recommended thresholds of significance for air quality and climate change. The recommended thresholds of significance are discussed in Section 3.2.3, "Impact Analysis and Mitigation Measures."

Metropolitan Transportation Plan/Sustainable Communities Strategy

The Metropolitan Transportation Commission (MTC) is the metropolitan planning organization governing the nine-county Bay Area region consisting of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties, and their 101 cities, including the City of Berkeley. The Association of Bay Area Governments (ABAG) is a regional planning agency that includes the nine-county Bay Area region. Additionally, ABAG and MTC are jointly responsible for the preparation of, and updates to, the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) and the associated Metropolitan Transportation Improvement Program (MTIP). Adopted in October 2021, the *Plan Bay Area 2050* MTP/SCS provides a vision for growth and investment in the Bay Area region through the year 2050 (MTC 2021).

Alameda County Transportation Commission

The Alameda County Transportation Commission (Alameda CTC) is the congestion management agency for Alameda County, tasked with developing a comprehensive transportation improvement program among local jurisdictions that will reduce traffic congestion and improve land use decision-making and air quality. Alameda CTC's latest congestion management program (CMP) is the 2023 CMP. Alameda CTC's countywide transportation model must be consistent with the regional transportation model developed by the MTC with ABAG data. The countywide transportation model is used to help evaluate cumulative transportation impacts of local land use decisions on the CMP system. In addition, Alameda CTC's CMP includes multimodal performance measures and trip reduction and transportation demand management strategies consistent with the goals of reducing regional vehicle miles traveled (VMT) in accordance with Senate Bill (SB) 375. The 2023 CMP demonstrates compliance with state and regional CMP requirements and summarizes work performed by Alameda CTC related to the major CMP elements since the last update in 2021.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of air quality impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of air quality impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.2.2 Environmental Setting

Ambient pollutant concentrations are determined by the amount of air pollutant emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The project site is in SFBAAB, which includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties. The Mediterranean climate type of SFBAAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures in SFBAAB range from 49.9 degrees Fahrenheit (°F) to more than 81.8°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 50°F. Also characteristic of SFBAAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding SFBAAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are often present over SFBAAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in SFBAAB. This period is characterized by warmer months with high ozone concentrations. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_X, which result in ozone formation.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Western Regional Climate Center Berkeley, California station. The normal annual precipitation is approximately 23.41 inches. January temperatures range from a normal minimum of 42.7°F to a normal maximum of 55.9°F. July temperatures range from a normal minimum of 53.8°F to a normal maximum of 70.3°F (WRCC 2016). The prevailing wind direction is from the west (WRCC 2002).

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in SFBAAB is provided below. Emission source types and health effects are summarized in Table 3.2-2. Alameda County's attainment status for CAAQS and NAAQS are shown in Table 3.2-3.

Table 3.2-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices, e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2023a.

Ozone

Ground-level ozone is not emitted directly into the air but is created by chemical reactions between ROG and NO_X. This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone at ground level is a harmful air pollutant because of its effects on people and the environment and is the main ingredient in smog (EPA 2023a).

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2023a). Emissions of the ozone precursors ROG and NO_X have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels (CARB 2013).

Table 3.2-3 Attainment Status Designations for the San Francisco Bay Area Air Basin

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Attainment (1-hour)[1]	(No State Standard for 1-hour)
	Nonattainment (8-hour)[3] Classification=Severe	Nonattainment (8-hour) Classification=Marginal
	Nonattainment (8-hour)[4] Classification=Severe	Nonattainment (8-hour) Classification=Marginal
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
	Attainment (24-hour)	Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[5]	(Attainment Pending) (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30-day average)
Hydrogen Sulfide		Unclassified (1-hour)
Sulfates	No Federal Standard	Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)
Vinyl Chloride		Unclassified (24-hour)

Notes:
1 Air Quality meets federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. BAAQMD attained the standard in 2009. BAAQMD has requested EPA recognize attainment to fulfill the requirements.
2 Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.
3 1997 Standard.
4 2008 Standard.
5 2010 Standard.
Source: EPA 2023b.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2023a).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2023a).

Particulate Matter

PM_{10} is emitted directly into the air, and includes fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). $PM_{2.5}$ includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. The most critical air pollutant affecting health in the Bay Area is $PM_{2.5}$, which includes diesel PM as a toxic air contaminant. Local levels of $PM_{2.5}$ and toxic air contaminants are highest near air pollution sources, such as freeways, heavily trafficked seaports, and large industrial facilities. The burden of breathing unhealthy air is often disproportionately borne by low-income communities and communities of color, many of which are situated close to busy highways, ports, factories, and other pollution sources (BAAQMD 2022). Acute health effects of exposure to PM_{10} include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases including asthma and chronic obstructive pulmonary disease, and premature death. Chronic health effects include alternations to the immune system and carcinogenesis (EPA 2023a). For $PM_{2.5}$, short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. Long-term (months to years) exposure to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children.

TOXIC AIR CONTAMINANTS

According to the California Almanac of Emissions and Air Quality (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data is available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013). In 2000, CARB adopted the Diesel Risk Reduction Plan, which recommends many control measures to reduce diesel PM. CARB estimated that the full implementation of the Diesel Risk Reduction Plan would result in an overall 75 percent reduction in the diesel PM inventory and the associated potential cancer risk for 2010, and an 85 percent reduction for 2020, when compared to 2000's diesel PM inventory and risk (CARB 2000).[1]

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (BAAQMD 2022). There are

1 Based on receptor modeling techniques, CARB estimated the average cancer risk associated with diesel PM concentrations in SFBAAB to be 360 excess cancer cases per million people in 2000.

no sources of substantial odors within the vicinity of the project site. Localized odors are primarily attributed to food service/restaurant establishments along University Avenue, Kala Bagai Way, and Shattuck Avenue.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those uses where exposure to pollutants could result in health-related risks to individuals. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

The UC Berkeley campus is surrounded by sensitive receptors both on- and off-campus. Off-campus sensitive receptors are primarily found adjacent to the western portion of the Campus Park because the eastern portion of the campus abuts the less developed East Bay hills. UC Berkeley also operates five child development centers (CDC) on or near the UC Berkeley campus: Dwight Way CDC, Haste Street CDC, Clark Kerr Campus CDC, University Village Albany CDC, and Harold E. Jones Child Study Center. The nearest CDC to the project site is the Harold E. Jones Child Study Center, located approximately 0.4 mile south.

Other sensitive receptors near the project site are primarily to the northwest and northeast of the site. The nearest sensitive receptors to the project site are the UC Berkeley's Anchor House Project that is currently under construction across University Avenue immediately north of the site, a new residential project (Modera Acheson Commons) that has recently been completed located across Walnut Street to the northwest of the site, and the mixed-use development (e.g., Rise at Berkeley and Heywood Apartments) immediately west of the project site.

3.2.3 Impact Analysis and Mitigation Measures

METHODOLOGY

This air quality analysis includes the evaluation of the potential impacts of the project in accordance with BAAQMD's 2022 CEQA Guidelines, which provide guidance for evaluating air quality impacts for projects within its jurisdiction. The guidelines direct that the primary measure for analyzing air quality impacts for a project-level review should be a qualitative evaluation of the project's consistency with the goals and control measures of the 2017 Clean Air Plan. In addition, this EIR also includes evaluation of construction- and operation-related emissions generated by new uses and activities under the project, as set forth in Chapter 2, "Project Description." In addition, this EIR evaluates localized CO emissions, TACs, and odor impacts as described below.

Consistency Analysis

In accordance with BAAQMD guidance for project-level CEQA analyses, the project is evaluated qualitatively for consistency with the most recently adopted air quality plan in the region and other relevant standards, including measures outlined in the BAAQMD's 2022 CEQA Guidelines.

Under BAAQMD's methodology, a determination of consistency with the 2017 Clean Air Plan should demonstrate that a project:

- supports the primary goals of the 2017 Clean Air Plan,
- includes applicable control measures from the 2017 Clean Air Plan, and
- would not disrupt or hinder implementation of any control measures in the 2017 Clean Air Plan.

A project that would not support the goals identified in the 2017 Clean Air Plan would not be considered consistent with the 2017 Clean Air Plan. On an individual project basis, consistency with BAAQMD's quantitative thresholds is interpreted as demonstrating support for the 2017 Clean Air Plan's goals. The guiding principles and sustainability features associated with UC Sustainable Practices Policy, UC Berkeley Sustainability Plan, UC Berkeley Campus Design Standards, and UC Berkeley CBPs are also considered to determine if the project is consistent with the 2017 Clean Air Plan.

Criteria Air Pollutants and Ozone Precursor Emissions

SFBAAB is currently designated as a nonattainment area for CAAQS and NAAQS for ozone and particulate matter. A number of criteria and non-criteria pollutants, such as ROG, PM, NOx, and TACs, also carry local health risks to surrounding communities. The project's emissions are assessed in accordance with BAAQMD-recommended methodologies and compared to BAAQMD-adopted thresholds.

Modeling assumptions are based on construction information provided in Chapter 2, "Project Description," and default values recommended by the California Emissions Estimator Model (CalEEMod). The detailed assumptions made for the modeling are described below.

Construction

Short-term, construction-related emissions of criteria air pollutants and ozone precursors are calculated using CalEEMod Version 2022.1. Emissions estimates are based on a combination of project-specific construction data (e.g., schedule, material volumes) provided by UC Berkeley and industry standard and accepted software tools, techniques, emission factors, and default modeling parameters for BAAQMD and the project type and size.

Construction of the project is expected to occur over an approximate 3-year period. Construction would begin as early as summer 2024 and conclude in summer 2028. As described in Chapter 2, "Project Description," site preparation is assumed to begin in summer 2024 and take 10 months to complete. Site preparation would include demolition and grading activities. Demolition would involve removal of approximately 200,000 square feet of existing buildings and asphalt areas resulting in 820 trucks (round trips) to haul debris to the disposal location. Grading would involve removal of approximately 48,000 cubic yards of soil resulting in 5,000 trucks (round trips) to haul debris to the disposal location. Demolition and soil haul trips are assumed to travel 40 and 13 miles one-way, respectively.

Construction is assumed to start in July 2025 and last approximately 36 months. Construction of the South Building would begin first, and construction of the North Building is assumed to begin as construction of the South Building enters its second year of construction. Construction phasing, equipment, material delivery trips, and worker commute trips are based on CalEEMod defaults for a 1.86-acre project site. For all phases, the project is assumed to use CalEEMod default offroad equipment (e.g., cranes, excavators, and dozers). Model assumptions and inputs for these calculations can be found in Appendix C.

Operation

Long-term operation-related emissions of criteria air pollutants and precursors are also calculated using the CalEEMod Version 2022.1. The operation of a building would begin as construction concludes. Operation of the South Building could overlap with construction of the North Building. Model details by emission source are described below. Model outputs can be found in Appendix C.

Mobile, Area, and Energy Sources

The operation of the project would generate emissions from mobile sources (vehicular traffic) and area sources, which would include consumer products, architectural coatings, and landscaping equipment. Mobile sources are estimated based on daily VMT estimates derived from population-based estimates for Home-Based work trips for faculty, staff, and students from the 2021 Long Range Development (LRDP) EIR and the number of automobile trips from the traffic analysis provided by Kittelson & Associates, Inc. (Appendix I). Annual vehicle trips and VMT are estimated assuming 347 workdays per year, consistent with the 2021 LRDP EIR. Area sources (e.g., consumer products, architectural coatings, and landscaping equipment) are modeled based on CalEEMod defaults. Further, no natural gas or propane is assumed to be required for future buildings operation as the project would be fully electric.

Emergency Generators

The operation of the project is assumed to include up to four on-site diesel back-up generators (two per building). Emergency generator emissions are estimated based on the expected annual testing frequency of 30 minutes twice per month, plus one-hour load bank testing once per year (13 hours total per year). In addition, based on guidance from BAAQMD, an additional 100 hours per year is added to each generator for non-testing and non-maintenance purposes. Thus, each generator is assumed to run for 113 hours per year. The details regarding specific generators to be used (including model year, engine tier, and horsepower) are not known. Assumptions regarding generator emissions tier and horsepower are based on assumptions made in the 2021 LRDP EIR.

Laboratory Emissions

Laboratories were categorized into three different types in the 2021 LRDP EIR: Lab Chemistry and Chemical Engineering, General Biological Sciences, and Physical Sciences/Other (Engineering, Geology, Physics, etc.). The specific type of laboratory uses to be located within on-site buildings is not known at this time. Therefore, laboratory emissions are estimated based on the worst-case emission factors developed as assumed in the 2021 LRDP EIR. Laboratory emissions are estimated based on the highest of the annual and hourly emission factors assumed in the 2021 LRDP EIR and the project's square footage.

Community Risk and Hazards (TACs)

Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts on the local level. An HRA has been conducted to evaluate TACs impacts resulting from project implementation. Refer to Appendix C for details input/output parameters included in the HRA. The following summarizes the primary methods used to conduct the HRA.

To determine health risk and pollutant concentrations at specific locations (i.e., receptors), first, air dispersion modeling is conducted using site-specific parameters (e.g., terrain, meteorological data), and then risk calculations are conducted. Dispersion modeling is conducted using CARB's approved American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee modeling system (AERMOD) Version 23132, and risk calculations are conducted using CARB's Hotspots Analysis and Reporting Program (HARP) Version 22118.

Community Risk and Hazards – Project

Construction

Emission sources for the construction HRA include on-site equipment exhaust, haul truck exhaust, on-site truck idling exhaust, on-site dust from material movements, and haul truck road dust.

For the project site where construction activities would occur, construction equipment sources are modeled as adjacent line volume sources. Each volume source is modeled with a plume height of 2.6 meters (8.5 feet) and plume width of 8.0 meters (26.2 feet). One set of volume sources is modeled with a release height of 0 meter (0 foot), representing dust emissions, and one set of volume sources with a release height of 3.4 meters (11.2 feet), representing diesel PM exhaust.

Haul routes are modeled as adjacent line volume sources with a plume height of 6.8 meters (22.3 feet) and plume width of 8.0 meters (26.2 feet). One set of volume sources is modeled with a release height of 0 meter (0 foot), representing dust emissions, and one set of volume sources is modeled with a release height of 3.4 meters (11.2 feet), representing diesel PM exhaust. The line sources represent the haul truck emissions traveling to and from the site. The haul routes extend 1,000 feet from the project site along University Avenue.

A total of four point sources are used to model truck idling emissions on-site during four construction phases. Source parameters included 17.8 meters per second (58.4 feet per second) exit velocity, 644 Kelvin gas exit temperature, release height of 3.4 meters (11.2 feet), and inside stack diameter of 0.305 meter (1 foot), per recommendations for sources with incomplete modeling information from BAAQMD (2022).

For specific source parameters and modeling assumptions, refer to Appendix C.

Operation

Operation TAC emission sources include exhaust from emergency generators and laboratories where chemicals are used (e.g., wet labs). Emissions from emergency generators are modeled as point sources in AERMOD. As described above, two emergency generators are assumed for each building, which would result in a total of four generators on the project site. These generators are modeled as enclosed outdoor generators with release height of 3.05 meters (10 feet), 805.4 Kelvin gas exit temperature, stack inside diameter of 0.183 meter (0.6 foot), and gas exit velocity of 40.95

meters per second (134.4 feet per second), based on the specifications of the emergency generator modeled in the 2021 LRDP EIR.

Laboratories store and actively use a variety of chemicals, some of which are considered TACs by the state Office of Environmental Health Hazard Assessment, that can become airborne through chemical evaporative losses during storage and normal chemical handling. The wet lab space is conservatively assumed to be the entirety of the South Building (176,000 square feet) and the North Building (310,000 square feet). An average exhaust flowrate per square foot of wet lab space is estimated using campus-wide laboratory data from the 2021 LRDP EIR, multiplied by the wet lab square feet to obtain exhaust flowrate. Based on the estimated exhaust flowrates, average exit velocity and stack diameter, a total number of 3 and 5 stacks are assigned for the South and North Buildings, respectively. The analysis conservatively assumes that the multiple exhausts would be located on the roof of each building and are modeled as point sources, with stack height of 12 feet and located with equal spacing along the center lines of the building roofs.

For specific source parameters and modeling assumptions, refer to Appendix C.

Community Risk and Hazards – Cumulative

The BAAQMD's CEQA Guidelines include standards and methods for determining the significance of cumulative health risk impacts (project in combination with existing sources of TACs emissions). The cumulative health risk values were determined by adding the health risk values from the project to the screening-level health risk values for cumulative emission sources. For a more comprehensive discussion on health risk impacts, Impact 3.2-3 below includes a detailed discussion for cumulative health risk related to TACs emissions. Cumulative sources represent the combined total risk values of individual sources within 1,000 feet of the project site.

Carbon Monoxide

CO impacts are assessed qualitatively, using the screening criteria set forth by BAAQMD and results from the project-specific traffic study.

Odors

Impacts related to odors are also assessed qualitatively, based on proposed construction activities, equipment types and duration of use, overall construction schedule, and distance to nearby sensitive receptors.

THRESHOLDS OF SIGNIFICANCE

As part of its 2022 CEQA Air Quality Guidelines, BAAQMD adopted thresholds of significance to assist lead agencies in the evaluation and mitigation of air quality impacts under CEQA. These thresholds establish the levels beyond which emissions of ozone precursors (ROG and NO_X), PM, local CO, and TACs would cause significant air quality impacts. Impacts are evaluated both on the basis of the State CEQA Guidelines Appendix G thresholds of significance and BAAQMD significance criteria.

In accordance with Appendix G of the State CEQA Guidelines the project would result in a significant impact to air quality if it would:

- conflict with or obstruct implementation of the applicable air quality plan,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard,
- expose sensitive receptors to substantial pollutant concentrations, or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

BAAQMD Air Quality CEQA Guidelines

BAAQMD's air quality thresholds of significance are tied to achieving or maintaining attainment designations with NAAQS and CAAQS. BAAQMD's project-level thresholds, which are scientifically substantiated, are numerical concentrations of criteria air pollutants considered to be protective of human health. Projects that do not exceed thresholds would not contribute to the nonattainment of CAAQS and subsequently NAAQS or result in increases in health-related impacts associated with increases in criteria air pollutants or ozone precursors. Applicable thresholds are summarized below in Table 3.2-4.

Table 3.2-4 Bay Area Air Quality Management District Thresholds

Pollutant	Construction	Operation
Criteria Air Pollutants and Precursors	*Average Daily (lb/day)*	*Average Daily Emissions pounds per day (lb/day)*
ROG	54	54
NOx	54	54
PM_{10} (exhaust)	82	82
$PM_{2.5}$ (exhaust)	54	54
PM_{10}/$PM_{2.5}$ (fugitive dust)	BMPs	None
Local CO	None	9.0 parts per million (ppm) (8-hour average), 20.0 ppm (1-hour average)
Risk and Hazards for new sources and receptors (Individual Project)	Same as Operational	Increased Cancer Risk of > 10.0 in a million Increased Non-cancer > 1.0 Hazard Index (chronic or acute) $PM_{2.5}$ increase: > 0.3 μg/m^3 annual average
Risk and Hazards for new sources and receptors (Cumulative Threshold)	Same as Operational	Cancer: > 100 in a million (from all sources) Increased Non-cancer > 10.0 Hazard Index (chronic or acute) $PM_{2.5}$ increase: > 0.8 μg/m^3 annual average
Odors	None	5 confirmed complaints per year averaged over three years

Source: BAAQMD 2022a.

Based on the State CEQA Guidelines Appendix G and the adopted BAAQMD thresholds of significance, the project would result in a significant air quality impact if it would:

- cause daily average construction-generated criteria air pollutant or precursor emissions to exceed 54 pounds per day (lb/day) for ROG and NO_X, 82 lb/day for PM_{10} exhaust, and 54 lb/day for $PM_{2.5}$ exhaust, or substantially contribute to emission concentrations (e.g., PM_{10}, $PM_{2.5}$) that exceed applicable NAAQS or CAAQS;
- cause daily average long-term criteria air pollutant or precursor emissions to exceed 54 lb/day or 10 tons per year (tons/year) of ROG and NO_X, 82 lb/day or 15 tons/year for PM_{10} exhaust, and 54 lb/day or 10 tons/year for $PM_{2.5}$ exhaust, or substantially contribute to emission concentrations (e.g., PM_{10}, $PM_{2.5}$) that exceed the applicable NAAQS or CAAQS;
- not implement BAAQMD's Basic Construction Mitigation Measures for dust emissions (e.g., PM_{10}, $PM_{2.5}$);
- result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 ppm or the 8-hour CAAQS of 9 ppm;
- expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in one million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater and/or a chronic or acute hazard index of 1;
- expose sensitive receptors to cumulative thresholds of 100 chances in one million for cancer risk, 0.8 μg/m^3 for $PM_{2.5}$, and 10 for non-cancer chronic health hazard; or,
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (i.e., five confirmed complaints per year averaged over 3 years).

ISSUES NOT DISCUSSED FURTHER

All potential air quality issues identified in the significance criteria are evaluated below.

IMPACT ANALYSIS

Impact 3.2-1: The project would not conflict with or obstruct implementation of an applicable air quality plan.

As discussed in Section 3.2.1, "Regulatory Setting," the California Clean Air Act requires air districts to create air quality plans that describe how the jurisdictions will meet air quality standards. These plans must be updated periodically. The most recently adopted air quality plan for SFBAAB is the 2017 Clean Air Plan. To fulfill state ozone planning requirements, the 2017 Clean Air Plan control strategy includes all feasible measures to reduce emissions of ozone precursors (ROG and NO_X) and reduce the transport of ozone and its precursors to neighboring air basins. In addition, the 2017 Clean Air Plan builds upon and enhances BAAQMD's efforts to reduce emissions of $PM_{2.5}$ and TACs. The 2017 Clean Air Plan does not include control measures that apply directly to individual development projects. Instead, the control strategy includes measures related to stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-greenhouse gas pollutants (BAAQMD 2017).

The 2017 Clean Air Plan focuses on two paramount goals (BAAQMD 2017):

- protect air quality and health at the regional and local scale by attaining all state and national air quality standards and eliminating disparities among Bay Area communities in cancer health risk from TACs; and
- protect the climate by reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

Under BAAQMD's methodology, a determination of consistency with the 2017 Clean Air Plan should demonstrate that a project:

- supports the primary goals of the 2017 Clean Air Plan,
- includes applicable control measures from the 2017 Clean Air Plan, and
- would not disrupt or hinder implementation of any control measures in the 2017 Clean Air Plan.

A project that would not support the goals of the 2017 Clean Air Plan would not be considered consistent with the plan. On an individual project basis, consistency with BAAQMD's quantitative thresholds is interpreted as demonstrating support for the 2017 Clean Air Plan's goals. Project consistency with applicable control strategies identified in the 2017 Clean Air Plan is summarized in Table 3.2-5.

Table 3.2-5 Project Consistency with Applicable Control Strategies of 2017 Clean Air Plan

Type	Project Consistency
Stationary Source	Stationary and area sources are regulated directly by BAAQMD; therefore, as the implementing agency, new stationary and area sources at UC Berkeley would be required to comply with BAAQMD's regulations. BAAQMD routinely adopts/revises rules or regulations to implement the stationary source control measures to reduce stationary source emissions. New stationary sources of emissions on and off campus, including emergency generators and laboratory facilities, would require review by BAAQMD for permitted sources of air toxics, which would ensure consistency with the 2017 Clean Air Plan. The 2020 Campus Energy Plan identified several options for replacing and/or upgrading the cogeneration plant at the UC Berkeley campus. Existing uses at the project site are powered by the cogeneration plant, which is powered by natural gas. However, the project would connect to Pacific Gas and Electric Company's (PG&E's) existing electrical infrastructure currently servicing the surrounding area. The project would be all electric and would be supplied by 100 percent carbon free electricity and no natural gas use or associated infrastructure would be included in the project. Moreover, as described in Chapter 2, "Project Description," the project includes several sustainable project features, include the provision of solar PV panels on the roof area of both buildings and being designed to achieve or exceed the US Green Building Council's Leadership in Energy and Environmental Design (LEED)™ Gold certification. As a result, the project would be consistent with the 2017 Clean Air Plan stationary source control measures.
Transportation Control Measures	Transportation control measures are strategies to reduce vehicle trips, vehicle use, VMT, vehicle idling, and traffic congestion for the purpose of reducing motor vehicle emissions. Although most of the transportation measures are implemented at the regional level—that is, by MTC or Caltrans—the 2017 Clean Air Plan relies on local communities to assist with implementation of some measures. The UC Berkeley 2020 Sustainability Plan identifies several

Type	Project Consistency
	transportation measures that would ensure consistency of campus projects with the transportation control measures of the 2017 Clean Air Plan. UCOP has goals and policies regarding UC Berkeley's fleet and transportation commute. Specifically, the UCOP has a goal to reduce single-occupant-vehicle use to no more than 40 percent of employees and to be carbon neutral from commute by 2050 or sooner. The project site is located within the Downtown Berkeley Priority Development Area and Transit Priority Area and is served by both BART and AC Transit. The project includes bicycle racks and sidewalks on all sides of the project site, which connect to the nearby urbanized area. The project would also implement the air quality (AIR) CBP listed below to ensure consistency with the UC Berkeley 2020 Sustainability Plan and ongoing efforts to reduce the use of single occupant vehicles. ▸ **CBP AIR-1:** UC Berkeley will continue to implement the same or equivalent transportation programs as currently exist, that strive to reduce the use of single-occupant and/or greenhouse gas emitting (internal combustion engine) vehicles by students, staff, faculty, and visitors to the UC Berkeley campus. As a result, the project would be consistent with the 2017 Clean Air Plan transportation source control measures.
Energy and Climate Control Measures	The Clean Air Plan energy and climate control measures are intended to reduce energy use and decarbonize the energy sector as a means of reducing adverse air quality emissions. The UC Berkeley 2020 Sustainability Plan and UCOP have specific goals with regard to use of carbon neutral energy sources, including procuring 100 percent clean electricity for eligible accounts by 2025. Additionally, existing uses at the project site are powered by the campus cogeneration plant, which is powered by natural gas. Project operation would be fully electric (no natural gas) and would include energy efficiency features that reduce energy demand. Therefore, implementation of the project would not conflict with energy and climate control measures.
Buildings Control Measures	The buildings control measures focus on working with local governments to facilitate adoption of best GHG emissions control practices and policies. The UC Berkeley 2020 Sustainability Plan identifies several measures to reduce energy use from the built and natural environment. New buildings associated with the project would be designed to achieve LEED Gold ratings. Under the UCOP sustainability goals and policies, new buildings and major modifications are also designed to achieve building energy targets and/or outperform the California Building Energy Title 24 energy-efficiency standards by at least 20 percent. Therefore, implementation of the project would not conflict with energy and climate control measures.
Agriculture Control Measures	Agricultural practices account for a small portion, roughly 1.5 percent, of the Bay Area GHG emissions inventory. The GHGs from agriculture include methane and nitrous oxide, in addition to carbon dioxide. The agriculture control measures target larger scale farming practices that are not proposed under the project. The project does not have large-scale farming at the UC Berkeley campus that would fall under the BAAQMD agricultural control measures. Therefore, implementation of the project would not conflict with these agricultural control measures.
Natural and Working Lands Control Measures	The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands. The project focuses on infill development and not greenfield development at a currently built site, it would not conflict with the natural and working lands control measures of the 2017 Clean Air Plan.
Waste Management Control Measures	The waste management control measures include strategies to increase waste diversion rates through efforts to reduce, reuse, and recycle. The UC Berkeley 2020 Sustainability Plan includes sustainable services waste reduction measures, including UC Berkeley goals to replace single use plastic food ware with locally compostable and reusable food ware at dine-in facilities on the UC Berkeley campus. The UCOP 2019 Sustainability Policies include zero waste reduction goals to reduce 50 percent of per capita solid waste levels by 2030 and waste-diversion goal of 90 percent for all of the UC campuses. Implementation of the ongoing UC Berkeley policies to reduce waste would ensure that implementation of the project would not conflict with these waste management control measures.
Water Control Measures	The 2017 Clean Air Plan includes measures to reduce water use. The UC Berkeley 2020 Sustainability Plan includes built and natural environment goals and policies targeting water reductions. The UCOP 2019 Sustainability Policies include targets of a 36 percent reduction in potable water use by 2025 for the UC system. Implementation of the ongoing UC Berkeley policies to achieve the potable water consumption reduction targets would ensure that implementation of the project would not conflict with these water control measures.
Super-GHG Control Measures	Super-GHGs include methane, black carbon, and fluorinated gases. The compounds are sometimes referred to as short-lived climate pollutants because their lifetimes in the atmosphere are generally shorter than most GHGs. Measures to reduce super-GHGs are addressed on a sector-by-sector basis in the 2017 Clean Air Plan. UC Berkeley monitors refrigerant use on campus and includes it as part of its annual inventory reporting.

Type	Project Consistency
Further Study Control Measures	The majority of the further study control measures apply to sources regulated directly by BAAQMD. Because BAAQMD is the implementing agency, new and existing sources of stationary and area sources at UC Berkeley would be required to comply with these additional further study control measures in the 2017 Clean Air Plan.

Source: BAAQMD 2017.

Based on the information presented in Table 3.2-5, above, the project would be consistent with the control measures identified in the 2017 Clean Air Plan and would not disrupt or hinder implementation of such control measures. In addition, as analyzed in Impact 3.2-2 below, the project would not result in exceedances of BAAQMD's thresholds for criteria air pollutants and thus would not conflict with the 2017 Clean Air Plan's goal to attain air quality standards. Therefore, the project would not conflict with applicable air quality plans and the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-2: Implementing the project would not result in construction and operational criteria air pollutants and ozone precursors emissions that exceed the average daily thresholds established by BAAQMD.

Construction

Construction-related activities would generate emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ through the use of off-road equipment, material hauling trips, material delivery trips, and worker commute trips. To estimate the emissions of criteria air pollutants and ozone precursors, activities related to demolition, South Building construction, and North Building construction are each modeled separately using CalEEMod in accordance with the method summarized in the "Methodology" section, above. The results of the modeling are summarized in Table 3.2-6. As shown in Table 3.2-6, construction activities related to demolition of the existing structures, construction of the South Building, and construction of the North Building would not result in exceedances of the average daily thresholds established by BAAQMD for criteria air pollutants and ozone precursors.

Table 3.2-6 Estimated Construction Emissions (Average Daily)

Construction Phase	ROG	NO_X	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Demolition	1.6	16.6	0.7	0.6
South Building	3.3	6.2	0.2	0.2
North Building	7.5	11.3	0.3	0.3
BAAQMD Construction Threshold	**54**	**54**	**82**	**54**
Exceeds Threshold?	No	No	No	No

Notes: ROG = reactive organic gases; NOx = oxides of nitrogen; PM_{10} = Particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = fine particulate matter; BAAQMD = Bay Area Air Quality Management District.

Source: Modeled by Ascent in 2023.

In addition, the project would implement CBPs AIR-2 and AIR-3 to minimize fugitive dust and fugitive emissions consistent with existing federal, state, regional, and UC regulations.

- **CBP AIR-2:** UC Berkeley will continue to comply with the current Bay Area Air Quality Management District basic control measures for fugitive dust control. The requirement to comply with the basic control measures will be identified in construction bids. The Bay Area Air Quality Management District's current basic control measures include:
  - Water all active construction areas at least twice daily, or as often as needed to control dust emissions. 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 will be used whenever possible.

- Pave, apply water twice daily or as often as necessary to control dust, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- 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).
- Sweep daily (with water sweepers using reclaimed water if possible) or as often as needed all paved access roads, parking areas and staging areas at the construction site to control dust.
- Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material.
- Hydroseed or apply nontoxic soil stabilizers to inactive construction areas.
- Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit vehicle traffic speeds on unpaved roads to 15 miles per hour.
- Replant vegetation in disturbed areas as quickly as possible.

- **CBP AIR-3**: UC Berkeley will continue to implement the following control measures to reduce emissions of diesel particulate matter and ozone precursors from construction equipment exhaust:
  - Equipment will be properly serviced and maintained in accordance with the manufacturer's recommendations.
  - Construction contractors will also ensure that all nonessential idling of construction equipment is restricted to five minutes or less, in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

Operation

Operation-related activities would generate emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with building electricity use (operation of the project buildings would be all-electric and no natural gas consumption would be required), landscaping activities, periodic painting, the use of consumer products, and mobile source emissions associated with building occupants commuting. Air quality emissions associated with the new laboratory uses are addressed in Impact 3.2-3 below. Long-term emissions associated with project operation (beginning in 2028) are estimated also using CalEEMod in accordance with the method summarized in the "Methodology" section, above. The estimated long-term criteria air pollutants and ozone precursors emissions are summarized in Table 3.2-7. As shown in Table 3.2-7, operational activities would not result in exceedances of the average daily thresholds established by BAAQMD for criteria air pollutants and ozone precursors.

Table 3.2-7 Estimated Operational Emissions (Average Daily)

Element	ROG	NO_X	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Mobile Sources	1.7	1.3	0.02	0.02
Area Sources	8.2	0.1	0.02	0.01
Energy Sources	-	-	-	-
Total Average Daily	*10.0*	*1.4*	*0.04*	*0.03*
BAAQMD Operational Threshold	**54**	**54**	**82**	**54**
Exceeds Threshold?	No	No	No	No

Notes: ROG = reactive organic gases; NOx = oxides of nitrogen; PM_{10} = particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = fine particulate matter; BAAQMD = Bay Area Air Quality Management District.

Source: Modeled by Ascent in 2023.

Summary

As shown in Tables 3.2-6 and 3.2-7, project construction and operation activities would not result in exceedances of the average daily thresholds established by BAAQMD for ROG, NOx, PM_{10}, and $PM_{2.5}$. Thus, the project would not result in cumulatively considerably increases in criteria air pollutants and ozone precursors that would contribute to the nonattainment status of SFBAAB. In addition, CBPs AIR-2 and AIR-3 would be implemented to minimize fugitive dust emissions. Therefore, the project would not result in a cumulatively considerable net increase of any criteria pollutant for which SFBAAB is in nonattainment status. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-3: The project, by itself, would not expose sensitive receptors to substantial toxic air contaminants concentrations. However, when combined with existing sources, the project would expose sensitive receptors to substantial toxic air contaminants concentrations.

Project

Construction

Project construction activities would include demolition, site preparation, and building construction. These activities would require the use of off-road equipment, heavy-duty diesel equipment, paving, and application of architectural coatings, which would result in temporary, short-term emissions of diesel PM. Diesel PM is the primary TAC resulting from project construction activities.

Demolition and renovation of older facilities could also result in the release of airborne asbestos because of the disturbance of asbestos-containing material that may be present in older buildings. Exposure to asbestos fibers could result in health issues such as lung cancer, mesothelioma (a cancer of the thin membranes lining the lungs, chest and, abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs) (CARB 2020). However, these activities would be subject to the EPA's Asbestos National Emission Standards for Hazardous Air Pollutants regulation and BAAQMD Regulation 11, Rule 2. The rule requires UC Berkeley and its contractors to notify BAAQMD of any renovation or demolition activity at least 45 working days prior to commencement of demolition/renovation. When removing any Regulated Asbestos Containing Material (RACM), compliance with BAAQMD regulations is required by law. This notification would include a description of structures and methods utilized to determine whether asbestos-containing materials are potentially present. All RACM found on the project site must be removed prior to renovation activity and there are specific requirements for surveying, notification, removal, and disposal of material containing asbestos. Therefore, compliance with BAAQMD rules and EPA regulations would ensure that asbestos-containing materials would be disposed of appropriately and safely and unsafe exposure to asbestos would not occur. Impacts related to lead-based paint are discussed in Section 3.8, "Hazards and Hazardous Materials."

Project construction would result in emission of diesel PM and total $PM_{2.5}$ (fugitive dust and exhaust) from on-site equipment use and vehicular travel (e.g., worker commute, vender trips, and haul trips). As discussed under "Methodology" section, above, an HRA is conducted to evaluate TACs impacts resulting from project construction. Results of the construction HRA are summarized in Table 3.2-8. As shown in Table 3.2-8, the estimated incremental cancer risk for the maximally exposed individual resident (MEIR) is 6.9 in a million, the chronic hazard index is 0.006 at the MEIR, and the $PM_{2.5}$ concentration at the MEIR is 0.117 $\mu g/m^3$.

Table 3.2-8 Construction Health Risk

Phase	Cancer Risk (per million)	Increased Non-Cancer Risk (Chronic Hazard Index)	$PM_{2.5}$ Concentration (µg/m^3)
Maximum Exposed Individual Resident	6.9	0.006	0.117
BAAQMD Threshold	10	1	0.3
Exceeds Threshold?	No	No	No

Source: Modeled by Ascent in 2023.

As summarized in Tabel 3.2-8, TACs emissions from construction of the project would not result in health risks in excess of BAAQMD's thresholds for cancer, chronic hazard, and $PM_{2.5}$.

<u>Operation</u>
Operation activities associated with implementation of the project would include new laboratory uses and new emergency backup generators. Regarding operational emissions from on-site sources, four diesel generators are assumed to operate for a total of 113 hours per year (13 hours per year for testing plus 100 hours of use for non-testing purposes, consistent with BAAQMD guidance). In addition, based on available chemical use data from existing UC Berkeley laboratories, off-gassing emissions at future laboratory buildings were modeled assuming worst-case laboratory emission rates from the 2021 LRDP EIR.

Results of the operational HRA are summarized in Table 3.2-9. As shown in Table 3.2-9, the estimated incremental cancer risk for the MEIR is 0.13 in a million, the chronic hazard index is less than 0.01 at the MEIR, the acute hazard index is 0.04 at the MEIR, and the $PM_{2.5}$ concentration at the MEIR is less than 0.01 µg/m^3.

Table 3.2-9 Operational Health Risk

Source	Cancer Risk (per million)	Increased Non-Cancer Risk (Chronic Hazard Index)	Increased Non-Cancer Risk (Acute Hazard Index)	$PM_{2.5}$ Concentration (µg/m^3)
Maximum Exposed Individual Resident (MEIR)	0.13	<0.01	0.04	<0.01
BAAQMD Threshold	10	1	1	0.3
Exceeds Threshold?	No	No	No	No

Source: Modeled by Ascent in 2023.

As summarized in Table 3.2-9, TACs emissions from project operation would not result in health risks in excess of BAAQMD's risk thresholds for cancer, chronic hazard, acute hazard, and $PM_{2.5}$.

<u>Summary</u>
Construction activities would result in temporary, short-term emissions of TACs, particularly diesel PM. Operation activities would result in long-term emissions of TACs, particularly diesel PM from emergency generators and TACs from laboratory uses. However, construction and operation of the project would not result in emissions of TACs that exceed BAAQMD project-level thresholds for cancer risk, chronic hazard, acute hazard, or annual $PM_{2.5}$ as shown in Tables 3.2-8 and 3.2-9. Therefore, construction and operation of the project would not expose sensitive receptors to substantial TACs emissions. As a result, this impact would be **less than significant**.

Cumulative
To evaluate cumulative exposure (i.e., combined risk from the project and existing sources) to nearby receptors, BAAQMD has adopted cumulative thresholds of 100 chances in one million for cancer risk, 0.8 µg/m^3 for $PM_{2.5}$, and 10 for non-cancer chronic health hazard. To determine potential cumulative risk exposure related to TACs, a review of existing major sources within 1,000 feet of the project site were evaluated using available data from the BAAQMD's Stationary Source Screening Map and Mobile Source Screening Map (BAAQMD 2022b, 2023). Based on this review, there are eight stationary sources within 1,000 feet of the project. Using the BAAQMD's *Health Risk Calculator with*

Distance Multiplier, risk and emission levels for stationary sources were adjusted based on their distance to the project site.

Additionally, the project site is in proximity to some major roadways, including both highways (e.g., I-80, I-580, and SR-4) and major surface streets (e.g., University Avenue). Major diesel rail, such as AMTRAK, is approximately 2 miles west of the project site. Based on a review of the *Mobile Source Screening Map*, existing cancer risk levels near the project site from nearby roadways are between 59.0 and 132.104 in a million, chronic hazard between 0.156 and 0.345, and $PM_{2.5}$ concentrations between 0.419 and 1.139 µg/m^3.

Combined risk levels are presented in Table 3.2-10 and summarized below:

- When combining the project's construction- and operation-related modeled risk, existing risk from the nearby stationary sources, and the risk from nearby roadways, the cumulative cancer risk is in the range of 106.22–179.26 chances in one million, which is above the BAAQMD threshold of 100 chances in one million.
- When combining non-cancer chronic hazard from project sources, nearby stationary sources, and nearby roadways, the maximum non-cancer chronic hazard is in the range of 0.35–0.54, which is below the BAAQMD threshold of 10 on the Hazard Index.
- When combining annual $PM_{2.5}$ concentrations from project sources, nearby stationary sources, and nearby roadways, the maximum annual $PM_{2.5}$ concentration is in the range of 27.05–27.77 µg/m^3, which is above the BAAQMD threshold of 0.8 µg/m^3.

Table 3.2-10 Cumulative Health Risk

Source ID[1]	Description	Distance to Project Site (feet)	Cancer Risk (per million)	Increased Non-Cancer Risk (Chronic Hazard Index)	$PM_{2.5}$ Concentration (µg/m^3)
Cumulative Sources					
8794	Residence Inn Berkeley	308	7.63	<0.01	0.01
9702	University of California, Berkeley	322	31.03	0.18	26.51
8836	Berkeley Way LLC	509	0.44	<0.01	<0.01
3058	Peralta Community College District	822	0.05	<0.01	<0.01
4448	City of Berkeley Fire Station #2	836	0.21	<0.01	<0.01
9692	University of California, Berkeley	857	0.55	<0.01	<0.01
9674	University of California, Berkeley	869	0.24	<0.01	<0.01
9699	University of California, Berkeley	886	0.08	<0.01	<0.01
—	Roadways[2]	—	59.0 - 132.104	0.156 - 0.345	0.419 - 1.139
—	Railroads[2]	—	—	—	—
Project Sources					
	Construction		6.92	0.01	0.12
	Operation		0.06	0.01	<0.01
	Project Sum		6.98	0.01	0.12
Combined Total	-	-			
Cumulative + Construction			106.22 - 179.26	0.35 - 0.54	27.05 - 27.77
BAAQMD Cumulative Significance Threshold			100	10	0.8
Cumulative Significance Threshold Exceeded?			**Yes**	No	**Yes**

Notes:

[1] Source IDs presented here are those used in the Stationary Source Screening Analysis Tool.

[2] Risk values are taken directly from BAAQMD's Mobile Source Screening Map. There are no risk values presented for railroads given the distance from diesel rail sources (approximately 2 miles).

Source: Modeled by Ascent in 2023.

It should be noted that screening levels available from BAAQMD are based on regional emissions modeling using a conservative set of parameters and do not provide fine-grained detail for evaluation at specific project sites. Thus, the risk levels and $PM_{2.5}$ concentrations from the *Mobile Source Screening Map* are difficult to discern at the granular level. This is evident in the cancer risk values from the *Mobile Source Screening Map*, which range from 59.0 in a million to 132.104 in a million.

Further, construction TAC and $PM_{2.5}$ emissions from the project would be primarily from temporary construction activities, which would cease once construction is complete, and would not represent a long-term substantial increase. Long term, the project would not substantially increase diesel truck travel in the area, and operational TAC and $PM_{2.5}$ emissions would be minimal and limited to emergency generators, new laboratories, and new passenger vehicle trips associated with visitors and workers accessing the project site. Additionally, UC Berkeley would implement CBP AIR-2, which requires adherence to the current BAAQMD basic control measures for reducing fugitive dust, and CBP AIR-3, which requires UC Berkeley to implement control measures to reduce emissions of diesel PM and ozone precursors:

- CBP AIR-2: UC Berkeley will continue to comply with the current Bay Area Air Quality Management District basic control measures for fugitive dust control. The requirement to comply with the basic control measures will be identified in construction bids. The Bay Area Air Quality Management District's current basic control measures include:
  - Water all active construction areas at least twice daily, or as often as needed to control dust emissions. 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 will be used whenever possible.
  - Pave, apply water twice daily or as often as necessary to control dust, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
  - 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).
  - Sweep daily (with water sweepers using reclaimed water if possible) or as often as needed all paved access roads, parking areas and staging areas at the construction site to control dust.
  - Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material.
  - Hydroseed or apply nontoxic soil stabilizers to inactive construction areas.
  - Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
  - Limit vehicle traffic speeds on unpaved roads to 15 miles per hour.
  - Replant vegetation in disturbed areas as quickly as possible.
- CBP AIR-3: UC Berkeley will continue to implement the following control measures to reduce emissions of diesel particulate matter and ozone precursors from construction equipment exhaust:
  - Equipment will be properly serviced and maintained in accordance with the manufacturer's recommendations.
  - Construction contractors will also ensure that all nonessential idling of construction equipment is restricted to five minutes or less, in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

However, because the sum of existing sources in the project vicinity exceeds the cumulative threshold for both cancer risk and annual $PM_{2.5}$ concentrations, mitigation is proposed to reduce the project's contribution to the cumulative condition to ensure the project is implementing its fair share towards reducing the cumulative health burden in the community. This cumulative impact would be **significant**.

Mitigation Measures

Mitigation Measure 3.2-3: Clean Equipment During Construction

UC Berkeley shall use equipment that meets the EPA Tier 4 emissions standards or higher for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated to UC Berkeley that such equipment is not commercially available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 engines similar to the availability for other large-scale construction projects in the City occurring at the same time and taking into consideration factors such as (i) potential significant delays to critical-path timing of construction and (ii) geographic proximity to the project site of Tier 4 Final equipment. Where such equipment is not commercially available, as demonstrated by the construction contractor, Tier 3 equipment shall be used. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Tier 4 interim emissions standard for a similarly sized engine, as defined by CARB's regulations. The requirement to use Tier 4 interim equipment or higher for engines over 50 horsepower shall be identified in construction bids.

Significance after Mitigation

Implementation of Mitigation Measure 3.2-3 would substantially reduce diesel PM emissions associated with construction. Implementation of this measure would reduce diesel PM emissions by approximately 90 percent. This measure, combined with fugitive dust control as required per CBP AIR-2 and diesel engine best practices as required per CBP AIR-3, would ensure the project is implementing its fair share towards reducing the cumulative cancer risk and $PM_{2.5}$ concentrations in the community. Thus, the project would not result in a considerable contribution to this significant cumulative impact. The cumulative impact related to exposing sensitive receptors to substantial concentrations of TACs would be **less than significant**.

Impact 3.2-4: The project would not expose sensitive receptors to substantial carbon monoxide concentrations.

Mobile-source CO emissions have historically decreased since the advent of catalytic converters, which decrease mobile-source exhaust emissions, as well as improvements in fuel economy since the CO NAAQS and CAAQS were established and implemented by EPA and CARB, respectively (e.g., the Corporate Average Fuel Economy standards and Advanced Clean Cars II program). Nonetheless, BAAQMD continues to recommend the evaluation of projects to determine if increases in peak-hour vehicular traffic could result in local CO hotspots from project operation. The BAAQMD 2022 CEQA Guide provides conservative screening criteria that can be used to determine whether implementing the project could result in CO emissions that exceed the thresholds of significance. If all the following screening criteria are met, operation of the project would result in a less-than-significant impact related to CO:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- Project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- Project-generated traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As detailed in Chapter 2, "Project Description," implementation of the project would not result in increased enrollment or student capacity at the campus, but implementation of the project would result in a net increase of up to 1,074 new employment opportunities. However, the project would not be expected to generate substantial new vehicle trips. Based on data provided by the traffic engineer, traffic volumes at affected roadways are expected to remain far below the vehicle per hour criteria (Appendix I) and not conflict with any congestion programs. Therefore, project-generated traffic volumes would not exceed BAAQMD's screening criteria established for evaluating CO impacts. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-5: The project would not expose sensitive receptors to substantial odorous emissions.

The occurrence and severity of odor impacts depends on numerous factors, including, the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose a substantial number of members of the public to objectionable odors would be deemed to have a significant impact.

Construction of the project would result in minor odors from the use of heavy-duty diesel equipment during construction phases. These odors would be intermittent and temporary, as they would only occur during the construction phases and would cease once construction activities are complete. Construction activities would occur over an approximately 3-year period and would be spaced out over the 1.86-acre project site; thus, odors generated during construction would not all concentrate at the same location for the entire duration of the construction period. Further, construction activities would be subject to BAAQMD Regulation 8, Rule 3, Architectural Coatings, and Rule 15, Emulsified Asphalt, which reduce odors from VOCs. Therefore, construction is not anticipated to result in substantial odors.

BAAQMD identifies land uses typically associated with potential odor impacts, including coffee roasters, industrial uses, waste and compost facilities, wastewater treatment plants, water treatment plans, and various industrial and agricultural uses. The project would include new laboratory buildings, academic and administrative space, and parking uses. However, none of the proposed on-site uses are associated with long-term sources of substantial odors, as identified by BAAQMD (BAAQMD 2022a). As a result, the project would not result in substantial odor impacts to both existing and future sensitive receptors during construction and operation. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.3 BIOLOGICAL RESOURCES

This section evaluates the biological resources known or with potential to occur on or near the project site and describes potential effects of implementation of the project on those resources.

No comments related to biological resources were received in response to the notice of preparation (NOP). Refer to Appendix A for the NOP and the comments received on the NOP.

3.3.1 Regulatory Setting

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (16 US Code Section 1531 et seq.), the US Fish and Wildlife Service (USFWS) regulates the taking of species listed in the ESA as threatened or endangered. In general, persons subject to the ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private or government-owned property and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take.

Section 10 of the ESA applies if a nonfederal agency is the lead agency for an action that results in take and no other federal agencies are involved in permitting the action. Section 7 of the ESA applies if a federal discretionary action is required (e.g., a federal agency must issue a permit), in which case the involved federal agency consults with USFWS.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it will be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations, Section 10.13. The list includes nearly all birds native to the United States.

STATE

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA), a permit from the California Department of Fish and Wildlife (CDFW) is required for projects that could result in the "take" of a plant or animal species that is listed by the state as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species but, unlike the federal definition, does not include "harm" or "harass." As a result, the threshold for take is higher under CESA than under the federal ESA. Authorization for take of state-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

California Fish and Game Code Sections 3503 and 3503.3—Protection of Bird Nests and Raptors

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.3 of the code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project implementation or other activities that cause the adults to abandon the nest, resulting in loss of eggs or young.

Species Fully Protected under California Fish and Game Code

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take. Incidental take of fully protected species could be permitted for certain types of projects as stipulated by Senate Bill 147 (e.g., water infrastructure, transportation, solar, wind) through 2033, or through a natural community conservation plan.

UNIVERSITY OF CALIFORNIA

UC Berkeley Continuing Best Practices

UC Berkeley applies continuing best practices (CBPs) relevant to biological resources as part of the project approval process. CBPs that would be implemented as part of the project are identified in Chapter 2, "Project Description," and provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR. Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts later in this section in Section 3.3.3, "Impact Analysis and Mitigation Measures."

Campus Specimen Tree Program

UC Berkeley has a program that it uses to evaluate specimen trees. Other plants (shrubs, groundcover, or grasses) that meet the criteria may also be considered as specimen flora. The Office of Physical & Environmental Planning implements the program and makes a status determination using five criteria during the project development process. To be considered a specimen tree, the tree or plant should be in good health and not pose a hazard to pedestrian or automotive traffic, existing buildings, or utilities and should have one or more of the following qualities:

- Aesthetics: The tree is an integral part of an architectural theme or plays an important role in framing or screening a building or other feature.
- Historical: The tree was planted as part of a memorial planting or is a particularly outstanding example of the original botanical garden plantings.
- Educational: The tree represents a special taxonomic or morphological feature, is unique to the campus or the San Francisco Bay area, is a particularly outstanding example of California flora, is part of an experimental planting with a special landscape or agricultural value, or is regularly used by campus instructors as an example of the species.
- Strawberry Creek: The tree provides shade and other benefits to aquatic habitat health, and removal of the tree would significantly increase erosion potential or affect the stability of a portion of the creek as a riparian corridor.
- Natural Area: The tree is located within either the Wickson, Grinnell, or Goodspeed Natural Areas.

Under this program, the retention of existing specimen trees, shrubs, and grass areas is a priority in the final design of proposed projects. Site preparation is conducted to minimize removal and/or damage of specimen trees or plant species to the full extent feasible. Sensitive construction practices are used to avoid possible damage to trees to be retained, including construction setbacks, installation of temporary construction fencing around individual trees to be preserved, and monitoring by a certified arborist if any required limb removal or disturbance would occur within the dripline of trees to be retained. Grading, vegetation removal, and replacement plans, where necessary, are coordinated with Capital Projects and/or Office of Physical & Environmental Planning. Specimen trees impacts are addressed by successful transplanting or through replacement by new plantings in kind or from other more horticulturally appropriate species previously reported from the campus. Landscaped areas are restored to the full extent feasible.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of biological resource impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of biological resource impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.3.2 Environmental Setting

The project site is composed of buildings, impervious surfaces (e.g., sidewalks, streets), and urban landscaping. It does not contain any aquatic habitat (e.g., streams, wetlands) or any other native vegetation communities.

URBAN LANDSCAPING

Urban landscaping on the project site includes large street trees and shrubs along University Avenue and Oxford Street and flowers in planters directly adjacent to the on-site buildings.

COMMON WILDLIFE SPECIES

The diversity of wildlife on the project site is low because it is located in a heavily urbanized area with no native vegetation communities and is subjected to frequent human activity. Most of the wildlife species expected to occur in the project vicinity are adapted to urban environments, and several are nonnative species. Common bird species expected to occur in the project vicinity include house finch (*Haemorhous mexicanus*), Brewer's blackbird (*Euphagus cyanocephalus*), house sparrow (*Passer domesticus*), American robin (*Turdus migratorius*), rock pigeon (*Columba livia*), and American crow (*Corvus brachyrhynchos*). Common mammals expected to occur in the project vicinity include opossum (*Didelphis virginiana*) and the nonnative eastern fox squirrel (*Sciurus niger*).

SENSITIVE BIOLOGICAL RESOURCES

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- officially listed by California under CESA or the federal government under the ESA as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered, threatened, or rare under CESA or the ESA;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing even if not currently included on any list, as described in Section 15380 of the State CEQA Guidelines;
- species identified by CDFW as Species of Special Concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local planning documents; and

- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR) of 1, 2, or 3. The CDFW system includes rarity and endangerment ranks for categorizing plant species of concern, and ranks 1, 2, and 3 are summarized as follows:
  - CRPR 1A: plants presumed to be extinct in California;
  - CRPR 1B: plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2A: plants presumed to be extinct in California but common elsewhere;
  - CRPR 2B: plants that are rare, threatened, or endangered in California but more common elsewhere; and
  - CRPR 3: plants about which more information is needed (a review list).

The term "California species of special concern" is applied by CDFW to animals not listed under the ESA or CESA but that are considered to be declining at a rate that could result in listing or that historically occurred in low numbers and known threats to their persistence currently exist. CDFW's fully protected status was California's first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected were eventually listed as threatened or endangered under CESA; however, some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time, and no take permits can be issued for these species except for scientific research purposes or for relocation to protect livestock.

Appendix D provides a list of the special-status plant species (Table 1) and special-status wildlife species (Table 2) that have been documented within the nine US Geological Survey (USGS) 7.5-minute quadrangles surrounding the project site, and it describes their regulatory status and habitat. Rationale supporting the potential for occurrence of special-status wildlife on the project site is also included in Table 2 (Appendix D). A total of 79 special-status plant species and 75 special-status animal species were determined to have potential to occur within the nine USGS 7.5-minute quadrangles including and surrounding the project site (CNDDB 2023, CNPS 2023, USFWS 2023; Table 1 and Table 2 in Appendix D).

None of the 79 special-status plant species identified during the review of existing data could occur on the project site. The site does not contain any natural habitat suitable for these special-status plants (e.g., grassland, woodland, forest, chaparral, coastal scrub, marsh, wetlands, serpentine soils; Table 1 in Appendix D). Two special-status wildlife species, American peregrine falcon (*Falco peregrinus anatum*) and white-tailed kite (*Elanus leucurus*), have potential to nest in natural and human-made habitats adjacent to the project site (e.g., large trees in the Campus Park, tall buildings) (Table 2 in Appendix D). The remaining 73 special-status wildlife species are unlikely to occur on or adjacent to the project site, including special-status bats (Big free-tailed bat [*Nyctinomops macrotis*], Pallid bat [*Antrozous pallidus*], Townsend's big-eared bat [*Corynorhinus townsendii*], and Western red bat [*Lasiurus frantzii*]) and Crotch bumble bee (*Bombus crotchii*), because of the lack of suitable habitat on the project site and the developed nature of the site and surrounding area (Table 2 in Appendix D).

Common Native Nesting Birds

Landscape trees and some larger shrubs adjacent to the project site may provide nesting habitat suitable for non-special-status native nesting birds provided protection under the California Fish and Game Code.

3.3.3 Impact Analysis and Mitigation Measures

METHODOLOGY

This impact evaluation is based on review of existing databases that address biological resources in the vicinity of the project site, including publicly available databases maintained by CDFW, the California Native Plant Society, and USFWS; aerial photographs; and the results of prior biological resource surveys in the area. The impact evaluation focuses on the potential for impacts on special-status species, sensitive natural communities, state- or federally protected wetlands, and migratory wildlife corridors or native wildlife nursery sites and conflict with habitat conservation plans.

THRESHOLDS OF SIGNIFICANCE

An impact on biological resources would be significant if implementation of the project would:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

ISSUES NOT DISCUSSED FURTHER

Special-Status Plants

As described above, the project site is completely developed and contains buildings, pavement, and landscaping. It does not include any potential habitat for special-status plant species. Therefore, no impact on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS would occur during construction or operation of the project. This issue is not discussed further.

Riparian Habitat or Other Sensitive Natural Community

The project site is developed and is surrounded by urban environment in the City of Berkeley. It does not contain riparian habitat or other sensitive natural communities. There are no riparian habitats or other sensitive habitats on or adjacent to the project site, so none would be affected directly or indirectly by project construction or operation. Therefore, no impact on riparian habitat or other sensitive natural communities would occur during construction or operation of the project. This issue is not discussed further.

State- or Federally Protected Wetlands

The project site does not contain state- or federally protected wetlands or other features. It does not support any wetlands or waters regulated by other agencies. Therefore, no impact on wetlands would occur during construction or operation of the project. This issue is not discussed further.

Native Wildlife Nursery Sites

As described above, the project site is completely developed and does not contain habitat that would support wildlife nursery sites (e.g., tree groves). Therefore, no impact on native wildlife nursery sites would occur during construction or operation of the project. This issue is not discussed further.

Consistency with Adopted Habitat Conservation Plans

No adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan applies to the project site. Therefore, the project would not conflict with any habitat conservation plans. This issue is not discussed further.

Conflict with the Campus Specimen Tree Program

The project site contains landscape trees, three of which would be removed before demolition activities. The three trees planned for removal do not meet any of the five qualifying criteria to be considered specimen trees:

- Aesthetics: The three subject trees do not play an integral part of an architectural theme or play an important role in framing or screening a building or other feature.
- Historical: The three subject trees were not planted as part of a memorial planting or are a particularly outstanding example of the original botanical garden plantings.
- Educational: The trees that would be removed are common landscape tree species (i.e., red maple [*Acer rubrum*], tulip tree [*Liriodendron tulipifera*]). Both the red maple and tulip tree are widely planted on the UC Berkeley Campus (Cockrell 1976) and throughout the City of Berkeley (Arborwell 2013). These species are not native to California.
- Strawberry Creek: These trees are not within the Strawberry Creek riparian corridor.
- Natural Area: These trees are not within the Wickson, Grinnell, or Goodspeed Natural Areas.

Additionally, nine new trees would be planted along the perimeter of the project site. Therefore, there would be no conflict with the Campus Specimen Tree Program. This issue is not discussed further.

Conflict with Local Policies or Ordinances

As stated above, UC Berkeley is an entity of UC. Based on its constitutional autonomy, UC Berkeley is not subject to local government planning and land use plans, policies, or regulations whenever using property under its control in furtherance of its educational mission. Therefore, the project would not conflict with local policies or ordinances. This issue is not discussed further.

IMPACT ANALYSIS

Impact 3.3-1: The project would not disturb American peregrine falcon, white-tailed kite, other nesting raptors, or other native nesting birds.

American peregrine falcon is delisted under the ESA and CESA, and was recently (June 2023) removed from the California Fully Protected species list through a legislative action (Senate Bill 147). White-tailed kites are fully protected under the California Fish and Game Code. The nearest documented occurrence of white-tailed kite is approximately 2.6 miles west of the project site (CNDDB 2023). Peregrine falcons are known to nest on Sather Tower, approximately 0.5 mile east of the project site (UC Berkeley 2023) in the Campus Park area. Although the project site does not contain nesting habitat suitable for American peregrine falcon or white-tailed kite, large trees east of the project site in the Campus Park may provide nesting habitat suitable for these species. In addition, these species are known to nest on buildings in urban areas and may nest on buildings surrounding the project site.

The project site contains landscape trees, some of which may provide nesting habitat suitable for common native nesting birds (e.g., songbirds), which are protected under the California Fish and Game Code. Three of these trees would be removed to accommodate new construction associated with the project. Additionally, larger trees adjacent to the project site in the Campus Park may provide nesting habitat suitable for common raptor species (e.g., red-tailed hawk [*Buteo swainsoni*], red-shouldered hawk [*Buteo lineatus*], Cooper's hawk [*Accipiter cooperii*]), which are also protected under the California Fish and Game Code.

Removal of trees could result in direct impacts on native nesting birds if they are present. In addition, building demolition and construction activities would involve the use of heavy machinery, vehicles, and large construction crews. Although these activities may not be substantially different from the existing urban conditions in the vicinity of the project site (e.g., vehicle traffic, Bay Area Rapid Transit noise, pedestrian traffic, buses, nearby construction activities), the noise and activity associated with demolition and construction could result in disturbance to nearby nesting American peregrine falcons, white-tailed kites, other raptors, or other native birds (e.g., in the Campus Park) if they are present. Indirect disturbance could potentially result in nest abandonment and loss of eggs or chicks.

As described in Chapter 2, "Project Description," UC Berkeley would implement CBP BIO-1, listed here as part of the project (see Appendix B for all applicable CBPs):

- **CBP BIO-1:** Avoid disturbance or removal of bird nests protected under the federal Migratory Bird Treaty Act and California Department of Fish and Game Code when in active use. This will be accomplished by taking the following steps.
  - If tree removal and initial construction is proposed during the nesting season (February 1 to August 31), a focused survey for nesting raptors and other migratory birds will be conducted by a qualified biologist within 14 days prior to the onset of tree and vegetation removal in order to identify any active nests on the site and surrounding area within up to 500 feet of proposed construction, with the distance to be determined by a qualified biologist based on project location. The site will be resurveyed to confirm that no new nests have been established if vegetation removal and demolition has not been completed or if construction has been delayed or stopped for more than seven consecutive days during the nesting season.
  - If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), tree and vegetation removal and building construction may proceed with no restrictions.
  - If bird nests are found, an adequate setback will be established around the nest location and vegetation removal, building demolition, and other construction activities shall be restricted within this no-disturbance zone until the qualified biologist has confirmed that birds have either not begun egg-laying and incubation, or that the juveniles from those nests are foraging independently and capable of survival outside the nest location. Required setback distances for the no-disturbance zone will be based on input received from the California Department of Fish and Wildlife and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone will be fenced with temporary orange construction fencing if construction is to be initiated on the remainder of the site.
  - A report of findings will be prepared by the qualified biologist and submitted to the UC Berkeley's Office of Physical & Environmental Planning for review and approval prior to initiation of vegetation removal, building demolition and other construction activities during the nesting season. The report will either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if vegetation removal and other construction activities are initiated during the non-nesting season and continue uninterrupted according to the above criteria.

Implementation of CBP BIO-1 would result in detection of nesting birds, if any are present, and avoidance of active nests through implementation of no-disturbance setbacks until such time as the nests are no longer active. As a result, the impact on nesting special-status or common birds would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.3-2: The project could interfere with bird migration and movement and increase the likelihood of bird strikes.

The project site is in Downtown Berkeley, a densely developed area with various low-rise, midrise, and high-rise buildings. It does not contain natural habitat that would function as a typical wildlife movement corridor, especially for terrestrial wildlife species. Although developed, the City of Berkeley is located in the Pacific Flyway, a major migratory route for birds. Berkeley is also located adjacent to the San Francisco Bay, which attracts many bird species. The proximity of these biological features to an urban area like the City of Berkeley increases the risk of bird/building strikes. Bird mortality resulting from building strikes contributes substantially to the overall mortality of bird species in the United States. An analysis of the best available bird mortality data concluded that between 104,000 and 1.6 million birds are killed as a result of collisions with high-rise buildings (i.e., greater than 11 stories tall) annually across the United States (Loss et al. 2014).

The South Building (five floors) is shorter than the tallest building (University Hall, seven floors) planned for demolition. The North Building would be approximately 75 feet taller than University Hall. However, the North Building would have a similar height as the Anchor House Student Housing building being constructed that is located immediately across University Avenue (Figure 2-5). The new buildings would be consistent in character with other buildings in Downtown Berkeley and the height of the buildings would not materially alter the potential for bird/building collisions in this urbanized setting.

The amount of glass in a building, especially untreated glass, is the strongest predictor of the risk of bird collisions (American Bird Conservancy 2015). Under certain conditions, glass on buildings can form a mirror, reflecting sky, clouds, or nearby habitat attractive to birds. Under other conditions, glass may appear transparent or black, which birds may perceive as an unobstructed route (American Bird Conservancy 2015). If placed in front of ground level windows, landscaping (e.g., shrubs, trees) can be reflected in these windows, causing birds to collide with the building (American Bird Conservancy 2015). Bird-friendly building-design strategies include (1) using minimal glass, (2) placing glass behind some type of screening (e.g., netting, screens, grilles, shutters, exterior shades), and (3) using glass with inherent properties that reduce collisions (American Bird Conservancy 2015). Although most bird collisions occur during the day, some avian species migrate at night, and artificial night lighting on buildings may result in disorientation, potential collisions, changes in animal behavior (e.g., foraging behavior, communication), and an increased likelihood of predation.

Although glass windows would be present, glass would make up less than 50 percent of each façade of the buildings' exteriors. Further, bird safety measures would be incorporated into building design, including the use of low-reflectivity glass, avoidance of free-standing glass elements, exterior light pollution control, and interior lighting shutoffs during nighttime hours if no occupants are present. While the project would implement the aforementioned building design measures to reduce the risk of bird collision, it is possible that collisions would still occur. Mortality of common birds as a result of building collisions is not expected to eliminate or reduce local bird populations below self-sustaining levels; however, the magnitude of mortality resulting from building collisions is difficult to predict. Therefore, this impact would be **significant**.

Mitigation Measures

Mitigation Measure 3.3-2: Implement Bird-Friendly Building Design Elements to Reduce Collison Risk

Structures and buildings that are new or are taller than existing structures and buildings shall be designed to minimize the potential risk of bird collisions. This should at a minimum include the following design considerations and management strategies: (1) avoid the use of highly reflective glass as an exterior treatment, which appears to reproduce natural habitat and can be attractive to some birds; (2) limit reflectivity and prevent exterior glass from attracting birds in building plans by utilizing low-reflectivity glass and providing other non-attractive surface treatments; (3) use low-reflectivity glass or other bird safe glazing treatments for the majority of the building's glass surface, not just the lower levels; (4) for office and commercial buildings, interior light "pollution" should be reduced during evening hours through the use of a lighting control system programmed to shut off during non-work hours and between 10 p.m. and sunrise if no occupants are present; (5) exterior lighting should be directed downward and screened to minimize illuminating the exterior of the building at night, except as needed for safety and security; (6) untreated glass skyways or walkways, freestanding glass walls, and transparent building corners should be avoided; (7) transparent glass should not be allowed at the rooflines of buildings, including in conjunction with green roofs; and (8) all roof mechanical equipment should preferably be covered by low-profile angled roofing or other treatments so that obstacles to bird flight are minimized. These strategies shall be incorporated at the direction of the Campus Architect during plan review, and the Campus Architect shall confirm the incorporation of these strategies into architectural plans prior to building construction.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-2, in addition to the existing design measures to reduce the risk of bird collision, would minimize bird collisions by reducing the attractiveness of the building façades such that this impact would be reduced to a **less-than-significant** level.

3.4 ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the project on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include prehistoric resources, historic-period resources, and "tribal cultural resources" (the latter as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-period physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or built environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places and objects, with cultural value to a tribe.

Five comment letters regarding cultural resources were received in response to the notice of preparation (NOP). The Berkeley Architectural Heritage Association requested that the EIR address the impacts of the demolition of two City of Berkeley-designated Landmarks: the Ernest A. Heron Building (2136-2140 University Avenue) and Martha E. Sell Building (2154-2160 University Avenue). The letter notes that these two buildings are significant at both the state and local levels and are also contributors to the Shattuck Avenue Downtown Historic District. Cameron Danesh, head of the Historic Preservation Club at Berkeley, asks that the aesthetic and historic value of the Heron and Sell buildings be considered in the EIR. The Historic Preservation Club sent a correspondence reiterating the earlier comments of Cameron Danesh. Make UC A Good Neighbor expressed concern over the removal of the two City of Berkeley Landmark buildings, which included a request for designs to be studied that would be respectful of Downtown Berkeley's character and heritage. Arlene Owseichik sent a letter expressing her concern for the demolition of the two City of Berkeley Landmark buildings. In addition to the five comment letters specifically commenting on cultural resources, multiple comment letters requested that cumulative impacts be evaluated and that the project be redesigned to save the two Berkeley Landmark buildings. The Native American Heritage Commission (NAHC) requested AB 52 and Senate Bill (SB) 18 compliance information; while SB 18 does not apply to the project because there is not a General Plan amendment associated with the project (which is the trigger for SB 18 compliance), SB 18 is not a CEQA requirement and therefore is not discussed in this section. AB 52 compliance is described below. The NOP and comments received in response to the NOP are provided in Appendix A.

3.4.1 Regulatory Setting

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and

3. It possesses at least one of the following characteristics:

   Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).

   Criterion B Is associated with the lives of persons significant in the past (persons).

   Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

   Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

For a property to retain and convey historic integrity it must possess most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Location is the place where the historic property was constructed or the place where a historic event occurred. Integrity of location refers to whether the property has been moved since its construction. Design is the combination of elements that create the form, plan, space, structure, and style of a property. Setting is the physical environment of a historic property that illustrates the character of the place. Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. This is an intangible quality evoked by physical features that reflect a sense of a past time and place. Association is the direct link between the important historic event or person and a historic property. Continuation of historic use and occupation help maintain integrity of association.

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee consideration in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin series was developed to assist evaluators in the application of NRHP criteria. For example, National Register Bulletin #36 provides guidance in the evaluation of archaeological site significance. If a property cannot be placed within a particular theme or time period, and thereby lacks "focus," it will be unlikely to possess characteristics which would make it eligible for listing in the NRHP. Evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, and flumes) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length, (2) presence of distinctive engineering features and associated properties, (3) structural integrity, and (4) setting. The highest probability for NRHP eligibility exists in the intact, longer segments, where multiple criteria coincide.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) protects Native American remains, including Native American graves on federal and tribal lands, and recognizes tribal authority over the treatment of unmarked graves. NAGPRA prohibits the selling of Native American remains and provides guidelines for the return of Native American human remains and cultural objects from any collection receiving federal funding, such as museums, universities, or governments. Noncompliance with NAGPRA can result in civil and criminal penalties.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historical resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations (CCR) Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Criterion 2. Is associated with the lives of persons important to local, California, or national history.

Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.

Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on “historical resources,” “unique archaeological resources,” and “tribal cultural resources.” Pursuant to PRC Section 21084.1, a “project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources. PRC Section 21084.2 establishes that “[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."

Historical Resources

“Historical resource” is a term with a defined statutory meaning (PRC Section 21084.1; State CEQA Guidelines Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the CRHR (PRC Section 5024.1).

2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3) Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency’s determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR (PRC Section 5024.1).

4) The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1[g]) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will affect unique archaeological resources. PRC Section 21083.2(g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Human Remains

Treatment options under State CEQA Guidelines Section 15064.5(e) to mitigate impacts to human remains include activities that preserve the dignity of the human remains and associated grave goods. Section 15064.5(e) states:

(e) 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.

Tribal Cultural Resources

CEQA requires public agencies to consider the effects of their actions on "[T]ribal cultural resources." PRC Section 21084.2 establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a [T]ribal cultural resource is a project that may have a significant effect on the environment." PRC Section 21074 states:

a) "Tribal cultural resources" are either of the following:

 1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either of the following:

A) Included or determined to be eligible for inclusion in the CRHR.

B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American Tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a Tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a Tribal cultural resource if it conforms with the criteria of subdivision (a).

Public Resources Code Section 21080.3

AB 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: "tribal cultural resources," defined in PRC Section 21074. Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration. CEQA Sections 21080.3.1 and 21080.3.2 state that within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency's jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

Public Resources Code Section 21083.2

Treatment options under PRC Section 21083.2(b) to mitigate impacts to archaeological resources include activities that preserve such resources in place in an undisturbed state. PRC Section 21083.2 states:

(a) As part of the determination made pursuant to Section 21080.1, the lead agency shall determine whether the project may have a significant effect on archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. An environmental impact report, if otherwise necessary, shall not address the issue of nonunique archaeological resources. A negative declaration shall be issued with respect to a project if, but for the issue of nonunique archaeological resources, the negative declaration would be otherwise issued.

(b) If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:

(1) Planning construction to avoid archaeological sites.

(2) Deeding archaeological sites into permanent conservation easements.

(3) Capping or covering archaeological sites with a layer of soil before building on the sites.

(4) Planning parks, greenspace, or other open space to incorporate archaeological sites.

(c) To the extent that unique archaeological resources are not preserved in place or not left in an undisturbed state, mitigation measures shall be required as provided in this subdivision.

(d) Excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project.

(e) In no event shall the amount paid by a project applicant for mitigation measures required pursuant to subdivision (c) exceed the following amounts:

(1) An amount equal to one-half of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a commercial or industrial project.

(2) An amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a housing project consisting of a single unit.

(3) If a housing project consists of more than a single unit, an amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of the project for the first unit plus the sum of the following:

(A) Two hundred dollars ($200) per unit for any of the next 99 units.
(B) One hundred fifty dollars ($150) per unit for any of the next 400 units.
(C) One hundred dollars ($100) per unit in excess of 500 units.

(f) Unless special or unusual circumstances warrant an exception, the field excavation phase of an approved mitigation plan shall be completed within 90 days after final approval necessary to implement the physical development of the project or, if a phased project, in connection with the phased portion to which the specific mitigation measures are applicable. However, the project applicant may extend that period if he or she so elects. Nothing in this section shall nullify protections for Indian cemeteries under any other provision of law.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both state and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are those of a Native American, the coroner must notify NAHC, which notifies and has the authority to designate the most likely descendant (MLD) of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code, Section 7050.5

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact NAHC.

Public Resources Code, Section 5097

PRC Section 5097 specifies the procedures to be followed if human remains are unexpectedly discovered on nonfederal land. The disposition of Native American burials falls within the jurisdiction of NAHC. Section 5097.5 of the code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

UNIVERSITY OF CALIFORNIA

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. Relevant sections of the Campus Design Standards are summarized below:

- In the event that artifacts, human remains, or other cultural resources are discovered during construction, the Contractor shall protect the discovered items, cease work for a distance of 35 feet radius in the area, and notify the Owner's Representative in writing. The Owner may retain an archaeological consultant to evaluate findings in accordance with standard practice and applicable regulations. Artifact recovery, if deemed appropriate, will be conducted during the period when construction activities are on hold.
- Development shall accommodate sites or areas of historical or archaeological significance. Approval shall be obtained before altering any archaeological, historical, or cultural resource eligible for, or listed on the National Register of Historic Places.
- If a utilities earthwork project is likely to affect a known cultural resource, mitigation shall be required by avoiding or reducing ground disturbance.

UC Berkeley Continuing Best Practices

UC Berkeley applies continuing best practices (CBPs) relevant to cultural resources as part of the project approval process. CBPs that would be implemented as part of the project are identified in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts later in this section in Section 3.4.3, "Impacts Analysis and Mitigation Measures." A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. As such, UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of cultural and tribal cultural resources impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of cultural and tribal cultural resources impacts.

The two commercial buildings (the Martha E. Sell Building and Ernest A. Heron Building) located within the project site are designated City of Berkeley Landmarks and are contributors to the Shattuck Avenue Downtown Historic District. Therefore, local regulation related to landmark preservation is provided here for informational purposes. This is consistent with the 2021 settlement agreement between UC Berkeley and the City of Berkeley which established a Collaborative Planning Framework and process to standardize the approach to reviewing a project's consistency with local plans, policies, and standards for projects that are located in the City Environs. The Collaborative Planning Framework provides opportunities for the City of Berkeley's Design Review Committee (DRC) and Landmarks Preservation Commission (LPC)) to comment and offer input on the project.

Landmarks Preservation Ordinance

The Landmarks Preservation ordinance, adopted in 1974, required the City of Berkeley to establish a list of potential buildings that should be considered for landmark, historic district, or structure of merit status. The Landmarks Preservation ordinance describes the criteria for structures, sites, and areas for landmark or historic designation, including, but not limited to, architectural merit and/or cultural, educational, or historic interest or value. Considerations may also include preservation as part of a neighborhood, a block, or a street frontage.

3.4.2 Environmental Setting

PREHISTORIC CONTEXT

The project site is located in the San Francisco Bay region, which has been occupied by humans for at least 12,000 years. Prehistoric sites dating to the Early Holocene/Lower Archaic (8000 and 3500 BC) are extremely rare; during this time people were largely mobile foragers using large leaf-shaped projectile points and handheld milling stones. The Early Period/Middle Archaic (3500 and 500 BC) saw increased stone technologies, trade, and sedentism. Many sites dating to the Early Period/Middle Archaic period in the San Francisco Bay region are shellmounds, midden sites containing large quantities of mollusk shells. One such site near the project site is the West Berkeley shellmound, which was situated at the mouth of Strawberry Creek at the San Francisco Bay approximately two miles west of the Campus Park; it was occupied by humans as early as 4,000 years ago. This shellmound yielded artifacts such as stone net sinkers; an abundance of mortars, pestles, and bone implements; rectangular shell beads; weapon tips and knives, and bi-pointed bone objects. These shellmounds and prehistoric context of the region indicate the potential for archaeological resources to be found in the project area (UC Berkeley 2021).

ETHNOHISTORY

Prior to European arrival in the 18th century, the project site was in territory occupied by the Ohlone people, specifically the Huchiun Ohlone who spoke the Chochenyo Ohlone dialect. The Ohlone culture may have come from the fusion of Hokan and Utian cultures. The proto-Utian migration, one of an estimated three major migrations of the Penutian-speaking peoples, settled the Sacramento/San Joaquin Basin, likely coming in contact with existing Hokan populations after spreading further west after 2,000 BC (UC Berkeley 2021).

The Ohlone were semisedentary collectors and hunters, although they probably ate primarily plant foods. The shellmounds were often used as major village centers by the Ohlone; however, the earliest shellmound components date to approximately 2,000 years before the arrival of the Ohlone and the identity of the earliest inhabitants remains unclear (UC Berkeley 2021).

The family household consisted of around 15 individuals with multiple families making up clans. Tribelets, or groups of interrelated villages under political leadership of a single headman, generally consisted of around 200 people and served as independent political units. Approximately 10,000 Ohlone lived in the Bay Area in 1770, but by AD 1810, much of their native population and culture had been destroyed by the encroachment of Europeans. During the Spanish period, Ohlone populations were decimated by disease and brutal conditions of the Mission System, however surviving descendants remain an important part of the social fabric of the Bay Area today (UC Berkeley 2021).

HISTORIC SETTING

Regional History

The California Gold Rush, starting in 1848 and California statehood in 1850 drew many settlers to California. Permanent settlement and development of the East Bay region began in the 1850s with Anglo-American pioneers claiming ownership of much of the land within what was formerly the Rancho San Antonio lands. The first intensive settlement in the East Bay region was in present-day downtown Oakland. Oakland was incorporated as a town in 1852 and Alameda County was established in 1853 (UC Berkeley 2021).

UC Berkeley Campus History

The College of California was chartered in Oakland in 1855 as a college preparatory school under the direction of Congregational minister Henry Durant. The institution had originally been established in 1852 as the Contra Costa Academy. In 1860, the College purchased a 160-acre tract of land on Strawberry Creek to establish a new, expanded campus. Founders' Rock, located at the corner of present-day Hearst Avenue and Gayley Road, marks the spot where the Trustees of the College of California dedicated the site of their new campus. The College collaborated with the State of California's Agricultural, Mining, and Mechanical Arts College. Under the provisions of the Morrill Act, Governor Henry H. Haight signed a law granting a charter to the University of California. The University of California came into existence on March 23, 1868. In 1869, the former College of California transferred its property and interests to the University of California. The University of California moved to the newly constructed Berkeley campus in 1873.

The Postwar Campus Planning Era extends from 1945 to 1987. The student population at UC Berkeley grew significantly during and after World War II, consistent with similar growth at other colleges and universities across the nation that was fueled in part by the 1944 G.I. Bill. This growth required a new direction for UC Berkeley planning and development to accommodate the increased student body size; in 1956, as required by the Regents, UC Berkeley adopted its first long range development plan (LRDP). The UC Berkeley campus expanded by about 5.6 million square feet during the postwar era, including buildings designed in Modern architectural styles by noted architects including Clarence Mayhew, Joseph Esherick, John Carl Warnecke, Gardner Dailey, Demars and Rey, Wurster, Bernardi and Emmons, Anshen and Allen and Mario Ciampi, and others.

In addition, as both UC Berkeley and the City of Berkeley grew during this time UC Berkeley started looking outside of its historical campus boundaries for additional properties to accommodate new development. As noted in Chapter 2, "Project Description," the campus is currently organized into five land use zones for planning purposes: Campus Park (180 acres that provide the majority of UC Berkeley's academic, research, and student life facilities), Hill Campus West, Hill Campus East, Clark Kerr Campus, and the City Environs (University-owned properties generally located within the City of Berkeley's Southside and Downtown areas). Among other buildings outside of the Campus Park, UC Berkeley acquired the former Anna Head School for Girls site located in the City Environs on Haste Street in 1963, and in 1982 acquired the former California School for the Deaf and Blind that was established in 1866 by the California state legislature. This is now the site of the Clark Kerr Campus (UC Berkeley 2021).

City of Berkeley

Located in northern Alameda County on the eastern shore of the San Francisco Bay, the City of Berkeley is named for eighteenth-century bishop and philosopher, George Berkeley. The UC Berkeley campus, situated adjacent to Downtown Berkeley, is the oldest campus within the UC system, as well as the home of the Lawrence Berkeley National Laboratory (Archives & Architecture 2015). The establishment of Berkeley's downtown commercial core is directly related to the development of the railroad yard at Berkeley Square that once extended from University Avenue to Allston Way. The commercial center of Berkeley grew around this early transportation hub and continues to serve as a destination for commerce-related activities for the larger community of Berkeley (Archives & Architecture 2015).

Project Site History

The project site is just outside of Campus Park within an area defined by UC Berkeley as the City Environs. It is located in an early commercial/residential area of the City of Berkeley adjacent to the western boundary of the Campus Park. Oxford Street, which lies between the Campus Park and the project site, was in place by the turn of the twentieth century and runs parallel to Shattuck Avenue and Kala Bagai Way (previously known as Stanford Place). The area was originally developed with a mixture of one- and two-story commercial and residential buildings. The area marked a transition from City center to the UC Berkeley campus.

By 1929, the project site was developed with a mixture of residential and commercial buildings. The parcels that are now occupied by University Hall formerly included a three-story dwelling, a one-story commercial building, and an automobile fueling station. The Martha E. Sell Building (2154-2160 University Avenue) and the Ernest A. Heron Building (2136-2140 University Avenue), both commercial buildings, were also present as they were constructed in the 1910s. By the middle of the twentieth century, several of the earlier buildings on the site had been torn down, and those lots now contained a used car sales lot, fueling station, and large automobile sales building as well as the Martha E. Sell and Ernest A. Heron buildings. In 1957, all of the buildings that remained on the project site, except for the Martha E. Sell and Ernest A. Heron buildings, were cleared in preparation for the construction of University Hall. University Hall was designed to be an academic office building and it was completed in 1959 (ARG 2024).

RECORDS SEARCHES, SURVEYS, AND CONSULTATION

On November 6, 2023, a records search of the project site and a 1/8-mile buffer was requested of the Northwest Information Center (NWIC), at California State University, Sonoma. The NWIC responded on December 7, 2023. The following information was reviewed as part of the records search:

- NRHP and CRHR,
- California Office of Historic Preservation Historic Property Directory,
- California Inventory of Historic Resources,
- California State Historic Landmarks,
- California Points of Historical Interest, and
- Historic properties reference map.

Eight previously recorded cultural resources were identified within the study area which included the project site and a 1/8-mile buffer; this includes seven historic buildings and one historic district. Two of these historic buildings and a portion of the historic district are on the project site: the Ernest A. Heron Building (2136-2140 University Avenue), the Marthe E. Sell Building (2154-2160 University Avenue), and the Shattuck Avenue Downtown Historic District.

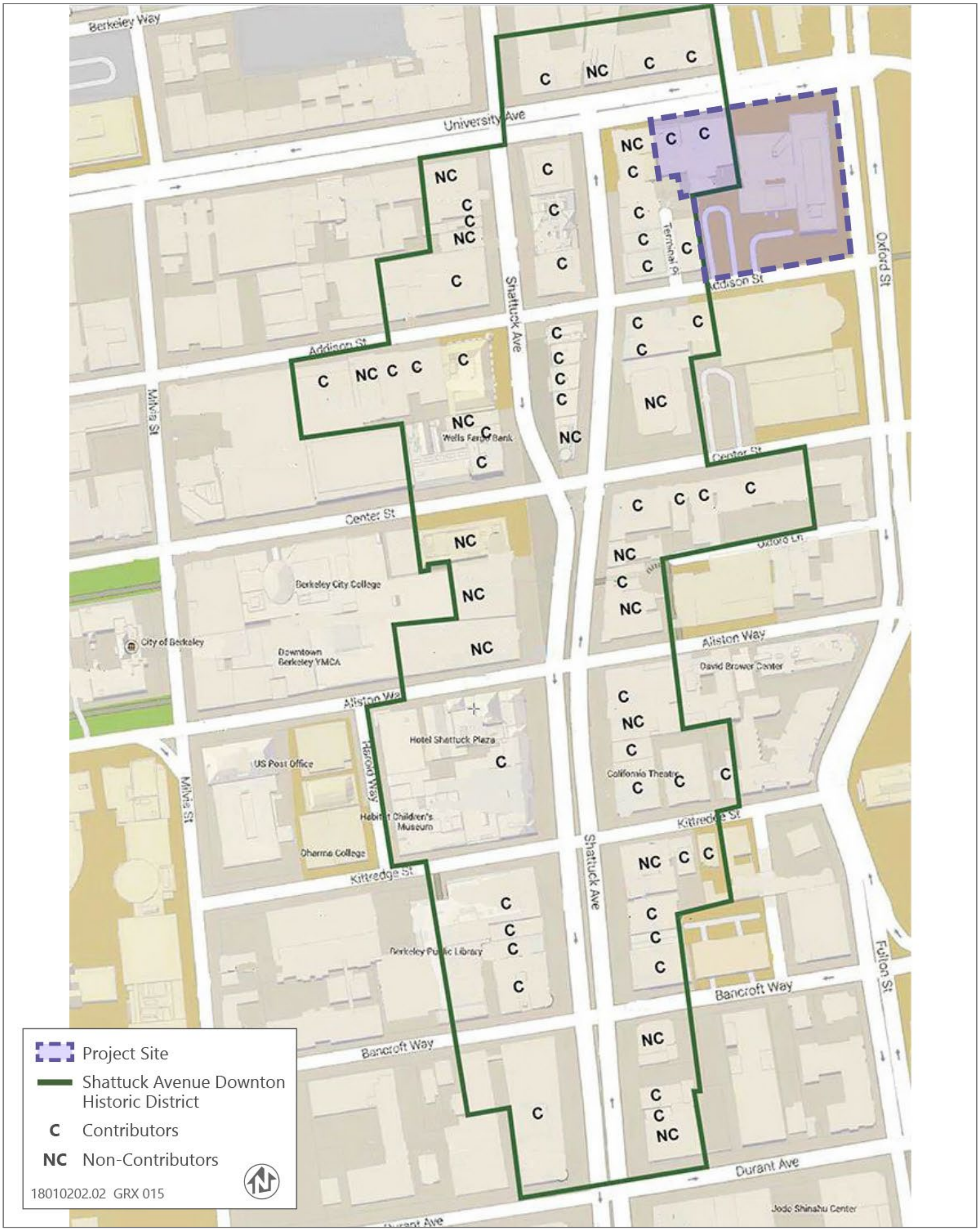
Additionally, Architectural Resources Group (ARG) surveyed and evaluated University Hall using the CRHR criteria as it had not previously been fully evaluated and it is currently over 50 years old.

Shattuck Avenue Downtown Historic District

In 2015, a study was conducted of the commercial area flanking Shattuck Avenue from Durant Avenue on the south and University Avenue on the north. “The Shattuck Avenue commercial corridor is recognizable today as a historic district that represents its architectural and historical significance from the period 1895-1958” (Archives & Architecture 2015). It includes 52 contributing buildings and was recommended eligible for the NRHP; therefore, it is automatically listed in the CRHR and is a historical resource under CEQA. The Shattuck Avenue Downtown Historic District is shown in Figure 3.4-1.

Ernest A. Heron Building (2136-2140 University Avenue)

The Ernest A. Heron Building is listed as Berkeley Landmark #274. This commercial building was constructed in 1911-12. According to the California Department of Parks and Recreation (DPR) 523 Form prepared by Archives & Architecture in 2015, the local significance of the building is based on its architecture; and its value as a contributing feature to the downtown; its association with its architect, John Hudson Thomas; and its association with Ernest Alvah Heron, who is considered to be a person of local significance. It is considered an “exemplar of early twentieth century commercial architecture with classical details, particularly its ornate cornice” (Archives & Architecture 2015). It is also a contributor to the Shattuck Avenue Downtown Historic District. The Ernest A. Heron Building is a historical resource under CEQA.



Source: Archives & Architecture 2015.

Figure 3.4-1 Shattuck Avenue Downtown Historic District

Martha E. Sell Building (2154-2160 University Avenue)

The Martha E. Sell Building is listed as Berkeley Landmark #275. This commercial building was designed by George Anderson and constructed in 1915. According to the DPR 523 Form prepared by Archives & Architecture in 2015, the local significance of the building is based on its architecture and its value as a contributing feature to the downtown. It is considered "a fine example of early twentieth century commercial architecture with classical details, particularly its ornate cornice, pilaster, and transom windows" (Archives & Architecture 2015). It is also a contributor to the Shattuck Avenue Downtown Historic District. Additionally, the building was determined eligible for the NRHP in 2004 and is therefore also listed in the CRHR. The Martha E. Sell Building is a historical resource under CEQA.

University Hall (2018 Oxford Street/2199 Addison Street)

University Hall is an academic office building that was constructed in 1959 in the International Style. It consists of two volumes; one of which is seven stories tall, and the other is one story tall and is known as the Annex. As the building is more than 50 years old, it was evaluated by ARG in 2023 and recommended ineligible for the CRHR (ARG 2024). University Hall was found to lack associations with significant persons/groups (Criterion A) or events (Criterion B). It was also not determined to be significant for its architecture, design or construction (Criterion C) or for its potential to yield information (Criterion D). Therefore, University Hall is not a historical resource under CEQA.

Tribal Cultural Resources

Sacred Lands File Search

On November 1, 2023, Ascent requested a Sacred Lands File (SLF) search and the list of Native American contacts for the project from the NAHC. On November 16, 2023, a positive response was received. Ascent contacted the Northern Valley Yogut/Ohlone Tribe and the Amah Mutsun Tribal Band on November 29, 2023, to request information related to the positive SLF result as well as general information gathering for the EIR analysis. Neither tribe provided information as to the nature of the positive result.

Native American Consultation

On December 4, 2023, UC Berkeley contacted, via email and certified letter, the tribes below to initiate AB 52 consultation. The specific details of the consultations are confidential pursuant to California law; however, a summary of events related to communication between the tribes and UC Berkeley is provided below in Table 3.4-1.

Table 3.4-1 AB 52 Consultation

Native American Tribe and Contact	Date of Initial Response	Comment
Andrew Galvan, Chairperson The Ohlone Indian Tribe	No Response	-
Vincent Medina, Cultural Leader The Ohlone Indian Tribe	No Response	-
Desiree Vigil, THPO The Ohlone Indian Tribe	No Response	-
Katherine Perez, Chairperson North Valley Yokuts Tribe	December 29, 2023	Requested consultation meeting. On January 22, 2024, requested that a Native American monitor be present
Alex R. Watts-Tobin, Ph.D., THPO-Archaeologist The Karuk Tribe's Department of Natural Resources	December 6, 2023	No comments
Corrina Gould, Tribal Chair The Confederated Villages of Lisjan Nation	January 19, 2024	Requested CHRIS and CEQA documents
Bunny Tarin, Tribal Administrator Guidiville Rancheria of California	No Response	-
Kanyon Sayers-Roods, MLD Indian Canyon Mutsun Band of Costanoan	No Response	-

Native American Tribe and Contact	Date of Initial Response	Comment
Ann Marie Sayers, Chairperson Indian Canyon Mutsun Band of Costanoan	No Response	-
Monica Arellano, Vice Chairwoman Muwekma Ohlone Indian Tribe of the SF Bay Area	No Response	-
Carla Munoz, Tribal Council Costanoan Rumsen Carmel Tribe	No Response	-
Herbert Griffin, Executive Director of Cultural Preservation Wilton Rancheria	Dec. 11, 2023	Requested a consultation meeting. On January 4, 2024, requested a Native American monitor, the use of native plants, the inclusion of a plaque with a land acknowledgement, information on the location of removed soils, that a discovery and treatment plan be implemented, and that training be provided to construction workers.
Kenneth Woodrow, Chairperson Wuksachi Indian Tribe/Eshom Valley Band	No Response	-
Valentin Lopez, Chairperson Amah Mutsun Tribal Band of Mission San Juan Bautista	No Response	-

Source: Data provided by UC Berkeley in 2023 and 2024.

3.4.3 Impact Analysis and Mitigation Measures

METHODOLOGY

The impact analysis for archaeological and historical resources is based on the findings of the "Historic Resource Evaluation, University Hall, University of California, Berkeley, California" (ARG 2024), the "Shattuck Avenue Commercial Corridor Historic Context and Survey" (Archives & Architecture 2015), and the supporting technical studies from the 2021 LRDP effort. The impact analysis for tribal cultural resources is based on the outcome of the AB 52 consultation. The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources. The Historic Resources Evaluation for University Hall and AB 52 consultation letters are provided in Appendix E.

For the purposes of the impact discussion, "historical resource" is used to describe built-environment historic-period resources. Archaeological resources (both prehistoric and historic-period), which may qualify as "historical resources" pursuant to CEQA, are analyzed separately from built-environment historical resources.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would result in a significant impact on cultural and tribal cultural resources if it would:

- cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: i) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC section 5020.1(k), or ii) a resource determined by the lead agency, in its discretion and

supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC § 5024.1. In applying the criteria set forth in subdivision (c) of PRC § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe; or

- disturb any human remains, including those interred outside of formal cemeteries.

ISSUES NOT DISCUSSED FURTHER

All potential cultural resources issues identified in the significance criteria are evaluated below.

IMPACT ANALYSIS

Impact 3.4-1: Implementing the project would cause a substantial adverse change in the significance of a historic resource.

The project would include the demolition of two historical resources: the Ernest A. Heron Building (2136-2140 University Avenue) and the Martha E. Sell Building (2154-2160 University Avenue). These two buildings are individually listed as City of Berkeley Landmarks and are also contributors to the NRHP-eligible Shattuck Avenue Downtown Historic District. Additionally, the Martha E. Sell building is individually listed on the NRHP and CRHR. University Hall would also be demolished, but as described above in Section 3.4.2, "Environmental Setting," it was recommended ineligible for the CRHR; therefore, it is not a historical resource under CEQA.

The demolition of the Ernest A. Heron and Martha E. Sell Buildings would result in a significant impact on these two individual historical resources. The demolition of these two buildings would also represent a significant impact on the Shattuck Avenue Downtown Historic District given the loss of those two buildings as contributors to the district. Although the district was recorded in 2015 as having 52 contributors, projects in the last decade have altered or demolished other buildings that contribute to the district. Because a complete study of the Shattuck Avenue Downtown Historic District is beyond the scope of this project, the current number of remaining contributors to the district with sufficient integrity is unknown. Therefore, this EIR conservatively concludes that demolition of two contributors would have a significant impact to the historic district.

The project would construct two new buildings on the project site - the South Building and North Building. A portion of the North Building would be sited where the Ernest A. Heron and Martha E. Sell buildings are currently located and, therefore, would be located within the Shattuck Avenue Downtown Historic District boundary. The addition of the North Building within the historic district could affect the project site's compatibility with the historic district. Regardless of the design of the North Building, which would be up to 11 stories tall with a total of 310,000 gross square feet of space, only a portion of the building would be located within the historic district boundary. The new construction would not break up the streetscape or be a visual intrusion on the historic district overall, as it would be constructed at the edge of the historic district. Because the significance of a historic district is primarily derived from the additive properties of its contributors, as opposed to the number of noncontributors that may be located within its boundaries, the addition of a modern building, especially one at the edge of a district, does not diminish the reason for the district's significance. Therefore, while the demolition of the two contributing buildings would be considered a significant impact, the construction of the new building within the historic district boundary, in and of itself, would not be considered a substantial adverse change to the Shattuck Avenue Downtown Historic District.

In summary, the project would cause substantial adverse changes to the Ernest A. Heron and Martha E. Sell buildings, as well as the Shattuck Avenue Downtown Historic District, through the demolition of two contributing buildings, which would result in **significant** impacts to three historical resources (the two buildings and the historic district).

Mitigation Measures

Mitigation Measure 3.4-1a: Historic American Building Survey

UC Berkeley shall have Historic American Building Survey Level II documentation completed for the Heron and Sell buildings. UC Berkeley shall submit digital copies of the documentation to an appropriate historical repository, including UC Berkeley's Bancroft Library, UC Berkeley Environmental Design Archives, or the California Historical Resources Information System Northwest Information Center. This documentation shall include a historical narrative, photographs, and/or drawings:

- Historical Overview: A professional meeting the Secretary of the Interior's Professional Qualification Standards in Architectural History or History shall assemble historical background information relevant to the historical resource.
- Photographs: Photo-documentation of the historical resource will be prepared to Historic American Building Survey standards for archival photography, prior to demolition. Historic American Building Survey standards require large-format black-and-white photography, with the original negatives having a minimum size of four inches by five inches. Digital photography, roll film, film packs, and electronic manipulation of images are not acceptable. All film prints, a minimum of four inches by five inches, must be hand-processed according to the manufacturer's specifications and printed on fiber-base, single-weight paper and dried to a full gloss finish. A minimum of 12 photographs shall be taken, detailing the site, building exterior, building interior, and character-defining features. Photographs must be identified and labeled using Historic American Building Survey standards.
- Drawings: Existing historic drawings of the historical resource, if available, will be digitally scanned or photographed with large-format negatives. In the absence of existing drawings, full-measured drawings of the building's plan and exterior elevations shall be prepared prior to demolition.

The Campus Architect shall verify compliance with this mitigation measure prior to the initiation of any site or building demolition or construction activities.

Mitigation Measure 3.4-1b: Notification to Local Historical Societies and Architectural Salvage Companies

UC Berkeley shall give local historical societies or local architectural salvage companies the opportunity to salvage character-defining or significant features from the Heron and Sell buildings for public information or reuse in other locations. UC Berkeley shall contact local historical societies and architectural salvage companies and notify them of the available resources and make them available for removal. If, after 30 days, no organization is able and willing to salvage the significant materials, demolition can proceed. The Campus Architect shall verify compliance with this measure prior to the initiation of any demolition activities that could affect the resources.

Significance after Mitigation

Implementation of Mitigation Measures 3.4-1a and 3.4-1b would reduce impacts to historic resources. Mitigation Measures 3.4-1a and 3.4-1b would record the buildings for posterity and potentially salvage some character defining features. However, the project would demolish two historic resources (Ernest A. Heron and Martha E. Sell buildings) resulting in the loss of those two individually significant buildings as well as result in a substantial adverse change to Shattuck Avenue Downtown Historic District by demolishing two contributors. These mitigation measures would not reduce the impacts to a less-than-significant level; therefore, the project would result in a **significant and unavoidable** impact related to historical resources.

Impact 3.4-2: Implementing the project could cause a substantial adverse change in the significance of unique archaeological resources.

No known archaeological resources were identified by the records search. However, the project site has been developed with buildings and structures for over 100 years and no studies are known to have been conducted to determine the presence or absence of archaeological resources. Due to the long habitation of the site and its proximity to creeks there is a possibility that there are precontact and/or historic-era archaeological resources on the project site. According to the archaeological report prepared for the 2021 LRDP, the project site has a moderately low to moderately high level of sensitivity for archaeological resources. Additionally, recent soil borings in the vicinity of the project site have found young alluvial deposits of the Late Holocene anywhere from a depth of 1.5 to 19 feet, which are potentially sensitive for prehistoric-era cultural resources. Therefore, ground-disturbing activities during project construction would result in a **potentially significant** impact to archaeological resources as defined by CEQA Guidelines Section 15064.5 or PRC Section 21083.2(g).

Mitigation Measures

Mitigation Measure 3.4-2: Archaeological Resources Protection Measures

UC Berkeley shall implement the following steps to ensure impacts to archaeological resources will be less than significant.

- Ground-Disturbing Activities.
  - Prior to soil disturbance, UC Berkeley shall confirm that contractors have been notified of the procedures for the identification of federal- or state-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological resources or tribal cultural resources on site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.
  - If a resource is discovered during construction (whether or not an archaeologist is present), the following measures shall be implemented:
    - All soil disturbing work within 35 feet of the find shall cease.
    - UC Berkeley shall contact a qualified archaeologist to provide and implement a plan for survey, subsurface investigation as needed to define the deposit, and assessment of the remainder of the site within the project area to determine whether the resource is significant and would be affected by the project.
    - Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation forms and evaluated for significance in terms of the California Environmental Quality Act (CEQA) criteria by a qualified archaeologist.
    - If the resource is a tribal cultural resource, the consulting archaeologist, approved by UC Berkeley in consultation with the appropriate tribe as determined by the Native American Heritage Commission, shall consult with the appropriate tribe to evaluate the significance of the resource and to recommend appropriate and feasible avoidance, testing, preservation or mitigation measures, in light of factors such as the significance of the find, proposed project design, costs, and other considerations.
    - If avoidance is infeasible, other appropriate measures (e.g., data recovery) may be implemented.
    - If the resource is a non-tribal resource determined significant under CEQA, a qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant.
    - The archaeologist shall also perform appropriate technical analyses; prepare a comprehensive report complete with methods, results, and recommendations; and provide for the permanent curation of the recovered resources if appropriate.
    - The report shall be submitted to the City of Berkeley, California Historic Resources Information System Northwest Information Center, and the State Historic Preservation Office, if required.
- Areas with High Archaeological Sensitivity. In addition to the requirements above for ground-disturbing activities, for projects in areas with moderately high to extreme archaeological sensitivity (as shown on the confidential Figure 11, Prehistoric Cultural Sensitivity Overlay Analysis Results) ground-disturbing activities shall be monitored by both an archaeologist and a tribal representative from the outset. Monitoring shall occur at the project site in areas with moderately high archaeological sensitivity for soil removal, parcel grading, new utility trenching, and

foundation-related excavation in those areas that extend into previously undisturbed soils. If resources discovered are indigenous in nature, archaeological monitoring must be undertaken by a qualified archaeologist approved by UC Berkeley in consultation with the appropriate tribe as determined by the Native American Heritage Commission or the appropriate tribe, who is familiar with a wide range of prehistoric archaeological or tribal remains and is conversant in artifact identification, human and faunal bone, soil descriptions, and interpretation. Based on project-specific daily construction schedules, field conditions, and archaeological observations, full-time monitoring may not be warranted following initial observations.

Significance after Mitigation

Mitigation Measure 3.4-2 requires that certain steps be followed during construction, including pre-construction training for all contractors and construction crew and work stoppage if a discovery is made, and having qualified monitors at the outset of ground-disturbing activities in areas with moderately high archaeological sensitivity. Implementation of this mitigation measure would reduce the impact to **less than significant**.

Impact 3.4-3: Implementing the project could cause a substantial adverse change in the significance of a tribal cultural resource.

A tribal cultural resource is defined under AB 52 as a site, feature, place, or cultural landscape that is geographically defined in terms of size and scope, sacred place, or object with cultural value to a California Native American tribe that is either included or eligible for inclusion in the CRHR or included in a local register of historical resources, or if UC Berkeley, acting as the lead agency, supported by substantial evidence, chooses at its discretion to treat the resource as a tribal cultural resource.

On December 4, 2023, UC Berkeley contacted, via email and certified letter, the tribes listed in Table 3.4-1 above to initiate AB 52 consultation. Any responses are also noted in Table 3.4-1. As noted above and pursuant to the UC Berkeley Campus Design Standards, in the event that artifacts are discovered during construction activities, the project contractor shall protect the discovered items, cease work within a 35-foot radius, and notify the owner's representative in writing. The owner may retain an archaeological consultant to evaluate findings in accordance with standard practice and applicable regulations. Artifact recovery, if deemed appropriate, would be conducted. Additionally, during AB 52 consultation, two tribes requested tribal construction monitoring of the site, and it is included as mitigation below.

As of the writing of this document, there are no known tribal cultural resources on the project site that would be impacted by the project; however, potential impacts to tribal cultural resources identified within the project site could occur if ground disturbance during construction were to encounter previously unknown tribal cultural resources. The impact would be **potentially significant**.

Mitigation Measures

Implement Mitigation Measure 3.4-2 above.

Significance after Mitigation

Compliance with existing federal and state laws and regulations as well as monitoring during construction, as required by Mitigation Measure 3.4-2, would protect unrecorded tribal cultural resources in the project site by providing for the early detection of potential conflicts between development and resource protection, and by preventing or minimizing the material impairment of the ability of archaeological deposits to convey their significance through excavation or preservation. Therefore, the impacts to tribal cultural resources would be **less than significant**.

Impact 3.4-4: Implementing the project could disturb human remains.

Based on documentary research, no evidence suggests that any prehistoric or historic-period marked or un-marked human interments are present within or in the immediate vicinity of the project site. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project site and could be uncovered by project-related construction activities. California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94. UC Berkeley cultural resources CBP CUL-1 reiterates that UC Berkeley will comply with Health and Safety Code Section 7050.5, PRC Section 5097.98 and the CCR Section 15064.5(e).

- CBP CUL-1: UC Berkeley will follow the procedures of conduct following the discovery of human remains that have been mandated by Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98 and the California Code of Regulations Section 15064.5(e) (California Environmental Quality Act [CEQA]). According to the provisions in CEQA, if human remains are encountered at the site, all work in the immediate vicinity of the discovery shall cease and necessary steps to ensure the integrity of the immediate area shall be taken. The County Coroner shall be notified immediately. The Coroner shall then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner shall notify the California Native American Heritage Commission (NAHC) within 24 hours, who will, in turn, notify the person the NAHC identifies as the Most Likely Descendant (MLD) of any human remains. Further actions shall be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the NAHC is unable to identify an MLD, the MLD fails to make a recommendation within 48 hours after being notified, or the landowner rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner, the owner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance.

Compliance with Health and Safety Code Section 7050.5, PRC Section 5097.98, and the CCR Section 15064.5(e) would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation is required for this impact.

3.5 ENERGY

This section was prepared pursuant to State CEQA Guidelines Section 15126 and Appendix G of the State CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. Appendix F (Energy Conservation) of the State CEQA Guidelines provides that potentially significant energy implications of a project must be considered in an EIR, with particulate emphasis on avoiding or reducing the inefficient, wasteful, and unnecessary consumption of energy. Accordingly, this section evaluates whether the project would result in inefficient, wasteful, and unnecessary consumption of energy.

No comments related to energy were received in response to the notice of preparation (NOP). The NOP and the comments received on the NOP are contained in Appendix A.

3.5.1 Regulatory Setting

Energy conservation is embodied in many federal, state, and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the US Environmental Protection Agency's [EPA] EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the State provides rebates/tax credits for installation of renewable energy systems and offers the Flex Your Power program which promotes conservation in multiple areas. UC and UC Berkeley also set sustainability goals and strategies to reduce emissions associated with energy use. At the local level, individual cities and counties establish policies in their general plans and climate action plans (CAPs) related to the energy efficiency of new development and land use planning and to the use of renewable energy sources.

FEDERAL

Energy Policy and Conservation Act, and CAFE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the US Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years.

The CAFE Standards, which were first enacted by Congress in 1975, set fleet-wide averages that must be achieved by each automaker for its car and truck fleet. The purpose of the CAFE Standards is to reduce energy consumption by increasing the fuel economy of cars and light trucks. On April 1, 2022, Transportation Secretary Pete Buttigieg unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks, requiring new vehicles sold in the US to average at least 40 miles per gallon.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce US dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over 2007 levels; and reduces US demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

STATE

Renewables Portfolio Standard

The State passed legislation referred to as the Renewables Portfolio Standard that requires increasing use of renewable energy to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (Senate Bill [SB] X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018).

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030. It also establishes energy efficiency targets that achieve statewide, cumulative doubling of the energy efficiency savings in electricity and natural gas end uses by the end of 2030.

California Energy Efficiency Action Plan

The 2019 California Energy Efficiency Action Plan has three primary goals for the state: double energy efficiency savings by 2030 relative to a 2015 base year (per SB 350), expand energy efficiency in low-income and disadvantaged communities, and reduce greenhouse gas (GHG) emissions from buildings. This plan provides guiding principles and recommendations on how the state would achieve those goals. These recommendations include:

- identifying funding sources that support energy efficiency programs,
- identifying opportunities to improve energy efficiency through data analysis,
- using program designs as a way to encourage increased energy efficiency on the consumer end,
- improving energy efficiency through workforce education and training, and
- supporting rulemaking and programs that incorporate energy demand flexibility and building decarbonization. (CEC 2019).

Warren-Alquist Act

Established in 1974, the Warren-Alquist Act created the California Energy Commission (CEC) in response to the energy crisis of the early 1970s and the state's unsustainable growing demand for energy resources. The CEC's core responsibilities include advancing State energy policy, encouraging energy efficiency, certifying thermal power plants, investing in energy innovation, developing renewable energy, transforming transportation, and preparing for energy emergencies. The Warren-Alquist Act is updated annually to address current energy needs and issues, and its latest edition was in 2023.

Assembly Bill 1007: State Alternative Fuels Plan

Assembly Bill (AB) 1007 (Chapter 371, Statues of 2005) requires CEC to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board (CARB) and in consultation with other state, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative nonpetroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, which aims to increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Energy Code. The code was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy-efficiency standards for residential and nonresidential buildings. CEC updates the California Energy Code every three years, typically including more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions.

The 2022 California Energy Code went into effect on January 1, 2023. The 2022 California Energy Code advances the onsite energy generation progress started in the 2019 California Energy Code by encouraging electric heat pump technology and use, establishing electric-ready requirements when natural gas is installed, expanding solar photovoltaic (PV) system and battery storage standards, and strengthening ventilation standards to improve indoor air quality. CEC estimates that the 2022 California Energy Code will save consumers $1.5 billion and reduce GHGs by 10 million metric tons of carbon dioxide equivalent over the next 30 years (CEC 2023a).

California Green Building Standards (Title 24, Part 11)

The California Green Building Standards, also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandator codes) developed by CEC that provides green building standards for statewide residential and nonresidential construction. The current version is the 2022 CALGreen Code, which took effect on January 1, 2023. As compared to the 2019 CALGreen Code, the 2022 CALGreen Code strengthened sections pertaining to electric vehicle and bicycle parking, water efficiency and conservation, and material conservation and resource efficiency, among other sections of the CALGreen Code. The CALGreen Code sets design requirements equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality. These codes are adopted by local agencies that enforce building codes and used as guidelines by state agencies for meeting the requirements of Executive Order (EO) B-18-12.

Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). EO S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. This target was superseded by AB 1279, which codifies a goal for carbon neutrality and reduce emissions by 85 percent below 1990 levels by 2045. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

CARB adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022, which traces the state's pathway to achieve its carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045 using a combined top-down, bottom-up approach under various scenarios. It identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals.

As it pertains to energy consumption and the reduction in fossil fuel use, the 2022 Scoping Plan identifies three priority areas that local land use development should focus on, including the decarbonization of building and transportation-related energy (e.g., cleaning the grid, reducing fossil fuel use for transportation) and the reduction of vehicle miles traveled (i.e. reduces all energy sources used in the transportation sector).

Executive Order B-18-12: Green Building Action Plan

In April 2012, EO B-18-12 was issued, which requires state agencies to implement green building practices to improve energy, water, and materials efficiency; improve air quality and working conditions for state employees; reduce costs to the state; and reduce environmental impacts from state operations. Among other actions, EO B-18-12 requires state agencies to reduce agency-wide water use by 10 percent by 2015 and 20 percent by 2020, as measured against a 2010 baseline. The EO directs new state buildings designed after 2025 to be constructed as zero net energy (ZNE) facilities, with an interim target of 50 percent of new facilities beginning design after 2020 to be ZNE. The EO also calls for state agencies to identify and pursue opportunities to provide electric vehicle charging stations at employee parking facilities in new buildings.

Legislation Associated with Greenhouse Gas Reduction

The State has passed legislation that aims to reduce GHG emissions. The legislation often has an added benefit of reducing energy consumption. SB 32 requires a Statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. EO S-3-05 sets a long-term target of reducing Statewide GHG emissions by 80 percent below 1990 levels by 2050.

SB 375 aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. The Advanced Clean Cars program, approved by CARB, combines the control of GHG emissions and criteria air pollutants and the increase in the number of zero-emission vehicles into a single package of standards. The program's zero-emission vehicle regulation requires battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. In August 2022, CARB adopted the Advanced Clean Cars II program, which sets sales requirements to reach the goal of 100 percent zero-emissions vehicles (ZEV) sales in the State by 2035. Additionally, in April 2023, CARB adopted the Advanced Clean Fleets regulation, which sets a goal of achieving a fully zero-emission truck and bus fleet within the State by 2045. Implementation of the State's legislation associated with GHG reduction will have the co-benefit of reducing California's dependency on fossil fuel and making land use development and transportation systems more energy efficient.

More details about legislation associated with GHG emissions reduction are provided in the regulatory setting of Section 3.7, "Greenhouse Gas Emissions and Climate Change."

UNIVERSITY OF CALIFORNIA

UC Strategic Energy Plan, University of California, Berkeley

In February 2009, the UC Strategic Energy Plan was prepared for all UC campuses to fulfill the goal of the UC Sustainable Practices Policy to implement energy efficiency projects in existing buildings (UCOP 2008). The initial goal for the retrofit projects was to reduce systemwide, growth-adjusted energy consumption by 10 percent or more by 2014 from the year 2000 base consumption level. The UC Strategic Energy Plan analyzed energy use and GHG emissions trends and identified potential energy efficiency retrofit projects at all buildings over 50,000 square feet (primarily lighting, HVAC, commissions, and central plant measures) for all UC campuses. Energy savings, GHG emissions savings, and financial returns were estimated for hundreds of projects, which are grouped into Tier 1 (committed projects to be completed over the next six years) and Tier 2 (additional planned projects) based on their savings and financial payback. The UC Strategic Energy Plan project list is intended to be regularly updated by each campus to evaluate the feasibility of additional energy-saving measures.

UC Berkeley Energy Policy

UC Berkeley has adopted a policy on energy use to ensure commitment to energy efficiency. The UC Berkeley Energy Use Policy creates requirements for campus departments and a specific framework to support energy and carbon-efficient decisions in accordance with the UC Sustainable Practices Policy, 2021 UC Berkeley Long Range Development Plan, Campus Master Plan, and Climate Action Plan. Primary offices responsible for the implementation of this UC Berkeley Energy Use Policy are the Energy Office, Building Department, Maintenance Operations of Facilities Services, and Capital Projects. The UC Berkeley Energy Use Policy outlines energy requirements and guidelines for:

- Existing Building Operations;
- New Construction;
- Large, Medium, and Small Renovations;
- Clean Energy Supply;
- Supply Chain Management and Information Technology; and
- Laboratories.

UC Sustainable Practices Policy

In 2003, the University of California Office of the President (UCOP) adopted a comprehensive policy of detailed guidelines for Green Building Design and Clean Energy Standards (now the UC Sustainable Practices Policy), including an annual sustainability reporting requirement. This policy has been revised several times, and the most recent version became effective in July 2023. It commits the UC to implementing actions intended to minimize its impacts on the environment and reduce dependence on nonrenewable energy. The UC Sustainable Practices Policy covers energy-related goals across various areas of sustainable practices, such as green building design, clean energy, climate action, sustainable transportation, sustainable building and laboratory operations for campuses, zero waste, sustainable procurement, sustainable foodservices, sustainable water systems, sustainability at UC health, general sustainability performance assessment, health and wellbeing, anti-racism, diversity, equity, and inclusion (UC Berkeley 2023). Policies across these various areas include the following:

- Policy A. Green Building Design
  1. New Buildings
     a. At a minimum, all new building projects, other than acute care facilities, will be designed, constructed, and commissioned to outperform the California Building Code (CBC) energy-efficiency standards by at least 20% [percent] or meet the whole-building energy performance compliance targets listed in Table 1 of Section V.A.1. Additionally, whenever possible within the constraints of program needs and standard budget parameters, the University will strive to design, construct, and commission buildings that outperform CBC energy efficiency standards by at least 30% [percent] or meet the whole-building energy performance stretch targets listed in Table 1 of Section V.A.1.

     c. New building or major renovation projects must not use onsite fossil fuel combustion (e.g., natural gas) for space and water heating (except those projects connected to an existing campus central thermal infrastructure). Projects unable to meet this requirement will document the rationale for this decision, as described in Section V.A.1.d.

     d. All new buildings will at a minimum achieve a USGBC LEED “Gold.” Additionally, whenever possible within the constraints of program needs and standard budget parameters, all new buildings will strive to achieve certification at a USGBC LEED “Platinum” rating. This provision applies to all building projects submitting Preliminary Drawings after January 1, 2024 (per section V.A.1.a.). Projects submitted prior to that date have the option to follow the old standard of achieving LEED Silver and striving for Gold.

     e. The University of California will design, construct, and commission new parking structures to achieve, at a minimum, Parksmart “Silver” certification and strive to achieve “Gold” whenever possible within the constraints of program needs and standard budget parameters. This provision applies to all building projects submitting Preliminary Drawings after January 1, 2024 (per section V.A.1.a.).

f. All new building projects will achieve at least five points within the available credits in LEED-BD+C's Water Efficiency and Sustainable Sites: Rainwater Management categories (in support of section III.I.) and prioritize earning waste reduction and recycling credits (per section V.F.)

- Policy B. Clean Energy

UC is committed to reducing its greenhouse gas emissions by reducing energy use and switching to clean energy supplies.

1. **Energy Efficiency** Each location will implement energy efficiency actions in buildings and infrastructure systems to reduce the location's energy use intensity by an average of at least 2% [percent] annually.
2. **On-campus Renewable Electricity** Campuses and health locations will install additional on-site renewable electricity supplies and energy storage systems whenever cost-effective and/or supportive of the location's Climate Action Plan or other goals.
3. **Off-campus Clean Electricity** By 2025, each campus and health location will obtain 100% [percent] clean electricity. The UC Clean Power Program first met this standard in 2018, and will continue to provide 100% [percent] clean electricity to participating locations.
4. **Transitional Biomethane** By 2025, at least 20% [percent] of the natural gas historically combusted on-site at each campus and health location will be biomethane. These biomethane volumes will double by 2030 and then decrease over time as UC's supply contracts expire. UC's use of UCOP-supplied biomethane as a transition fuel to replace fossil gas will conclude before 2040.

UC Berkeley Climate Action Plan

In the fall of 2007, UC Berkeley prepared its first climate action plan, 2007 Cal Climate Action Partnership Feasibility Study, to address the near-term requirement of the UC Sustainable Practices Policy for submittal of a climate action plan. In 2009 the UC Berkeley Office of Sustainability prepared the 2009 Climate Action Plan (UC Berkeley 2009). The 2009 Climate Action Plan included an initial goal of reducing campus emissions to 1990 levels by 2014, faster than required under AB 32. The 2009 Climate Action Plan also began the framework for carbon neutrality at UC Berkeley by providing progressively lower emissions until climate neutrality is achieved by year 2050 from Scopes 1, 2 and 3. UC Berkeley also includes Scope 3 emissions from solid waste, water, and wastewater.

UC Berkeley Sustainability Plan

The UC Berkeley Sustainability Plan (2020 Sustainability Plan) is an update to UC Berkeley's Carbon Neutrality Planning Framework. The 2020 Sustainability Plan guides future work on campus relative to UC Berkeley's carbon neutrality goals. The 2020 Sustainability Plan provides a clear structure to articulate the vision, goals, and corresponding strategies to become more sustainable and align with systemwide UCOP Sustainability Practices Policy Changes (UC Berkeley 2020). The 2020 Sustainability Plan also integrates UC Berkeley–specific goals that exceed the UC policies, including climate and resiliency strategies for UC Berkeley. Table 3.5-1, UC Berkeley 2020 Sustainability Plan Goals, identifies the UC and UC Berkeley–specific sustainability goals currently in place.

Table 3.5-1 UC Berkeley 2020 Sustainability Plan Goals

University of California Goals	UC Berkeley Goals
Efficiency and Clean Energy	
▸ Reduce energy-use intensity of campus space by 2% annually. ▸ Install additional on-site renewable electricity supplies and energy storage systems whenever cost-effective and/or supportive of the location's Climate Action Plan or other goals. ▸ Beginning in 2025, each campus and UCOP will use UCOP-procured biomethane as a transition fuel to partially replace fossil gas. UC's use of UCOP-supplied biomethane will conclude before 2040. UC locations will report annual Scope 1 emissions to UCOP and the impact that biomethane use has on those emissions. ▸ New equipment requiring liquid cooling will not use once-through or single-pass cooling systems.	▸ By 2020 procure 100% clean electricity for eligible accounts. ▸ By 2050 the campus will use only 100% clean, renewable energy. ▸ Major modifications to an existing building will reduce the affected space's energy use by a minimum of 2%. Medium modifications will result in "No Net Increase" to energy use. Minor Modifications that impact building energy use will strive to achieve the "No Net Increase" energy goal.
Transportation: Fleet	
▸ Zero emission or hybrid vehicles will account for at least 50% of all new light duty vehicle acquisitions. ▸ Develop a Fleet Sustainability Implementation Plan by January 1, 2022, to document the infrastructure and financial needs to implement a low-carbon fleet program and lower campus fleet carbon emissions through 2025.	▸ By 2030 eliminate diesel use in fleet vehicles. ▸ By 2022 replace the shuttle fleet, as feasible, with zero emission, sustainable fueled, non-diesel, or hybrid vehicles. ▸ By 2030 all low-speed neighborhood vehicles (including non-licensed carts) will be all electric or zero-emission. ▸ By 2022 increase E85 fuel use in existing gasoline/E85 flex fuel vehicles 20% over 2018 baseline.
Transportation: Commute	
▸ By 2025, reduce the percentage of employees and students commuting by single-occupant vehicle (SOV) by 10% relative to 2015 SOV commute rates. ▸ Reduce SOV commute rate to no more than 40% of employees and no more than 30% of all employees and students by 2050. (In other words, 60% of employees and 70% of employees and students will use alternative commute modes). ▸ Promote purchases and support investment in alternative fuel infrastructure. ▸ By 2025, strive to have at least 4.5% of commuter vehicles be ZEV. ▸ By 2050, strive to have at least 30% of commuter vehicles ZEV.	▸ Reduce employee drive alone rate to 36% by 2025.
Transportation: Air Travel	
▸ Recognizing that flexible work arrangements, including telecommuting, are a low-cost, effective way to reduce emissions and carbon footprint, each location should review and update local employee telecommute and flexible work policies, guidelines, procedures, and other applicable documents to normalize and promote telecommuting options and other flexible scheduling, as aligned appropriately based on business needs.	▸ Offset a portion of business air travel carbon emissions. ▸ Reduce emissions from business air travel by 10% by 2025.

University of California Goals	UC Berkeley Goals
Built and Natural Environment: Buildings	
▸ All new buildings and major modifications will achieve a minimum of LEED Gold certification. Renovations shall achieve a minimum LEED ID+C Certified. ▸ All new buildings and major modifications will be designed and constructed to meet the whole-building energy performance targets or outperform the California Building Code energy efficiency standards by at least 20%. ▸ No new building or major modification off of the main campus energy system will use onsite fossil fuel combustion (e.g., natural gas) for space and water heating (see Berkeley accelerated goal).	▸ All new buildings and major modifications will achieve a minimum of LEED Gold certification. ▸ All new buildings and major, medium and small modifications will maximize energy efficiency. ▸ All new buildings and major modifications off of the main campus energy system will eliminate carbon emissions through no onsite fossil fuel combustion for space and water heating, laundry and cooking. ▸ By 2023, recommend a comprehensive sustainable built environment guidance.
Built and Natural Environment: Water	
▸ Reduce growth-adjusted potable water consumption 36% by 2025, compared to a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08. Locations that achieve this target early are encouraged to set more stringent goals to further reduce potable water consumption. ▸ Strive to reduce potable water used for irrigation by converting to recycled water, implementing efficient irrigation systems, drought-tolerant plantings, and turf removal. ▸ Develop and maintain a Water Action Plan.	▸ By 2022 produce a Sustainable Water Action Master Plan to include a menu of water saving and reuse recommendations and reduction goal targets to go beyond the UC goal. ▸ By 2022 produce a Stormwater and Green Infrastructure Master Plan to identify best practices and catalyze multi-benefit projects. ▸ Create learning and research opportunities and elevate water as a sustainability priority.
Sustainable Services: Green Labs	
▸ Implement an ongoing Green Lab Assessment Program supported by a department on campus to assess operational sustainability of research groups and the laboratories and other research spaces they use.	▸ UC Berkeley Green Labs program will engage multiple partners in greener research and environmental stewardship within as many labs as possible. Key areas for improvements: engagement and green labs certification; procurement of greener consumables and equipment; energy and water efficiency; and waste reduction.

Note: % = percent

UC Berkeley Carbon Neutrality Planning Framework

In 2016, UC Berkeley published the 2025 Carbon Neutrality Planning Framework, which discusses strategies to achieve the UC system's GHG reduction goals of net-zero Scope 1 and 2 emissions by 2025 and net-zero Scope 3 emissions by 2050. The 2025 goal translates to a total emissions reduction of approximately 80 percent below 2016 levels (UC Berkeley 2016). UC Berkeley intends to maintain net zero Scope 1 and 2 emissions 2025 and beyond.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley campus built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects on the UC Berkeley campus integrate industry best practices and experience with existing UC Berkeley buildings, infrastructure, grounds, and maintenance issues. UC Berkeley's Campus Design Standards contains construction specifications to guide design and to ensure that new construction and renovation projects use continuing best practices (CBPs) and are integrated with the existing UC Berkeley campus. They are administered by the Campus Building Department and apply to all construction projects sponsored by UC Berkeley. The Campus Design Standards include requirements for building materials, lighting, glass and glazing, screening, planting, and others. They largely adopt and build off of other applicable regulations, such as the CBC. The Campus Design Standards are updated every three years to incorporate updates to the CBC.

Key sections of the Campus Design Standards relevant to energy include required compliance with Title 24, Part 6, California Energy Code, and with green building standards in the UC Sustainable Practices Policy, which provides guidance on the required sustainable energy systems (e.g., Section 01 81 13 of the UC Sustainable Practices Policy).

The Campus Design Standards also include the following additional requirements related to energy (UC Berkeley 2020):

- The UC and UC Berkeley have sustainability policies and goals related to green building, energy efficiency, renewable energy supply, water, waste, procurement, food, transportation, land use, and academics and learning. Projects will need to comply with all applicable policies in the most recent version of the UC Sustainable Practices Policy (UC Berkeley 2023). Additionally, UC Berkeley may have sustainable design policies that exceed the standards. Potential future projects will need to comply will applicable UC Berkeley specific guidelines as well.
- UC Berkeley requires full compliance with the most recent version of California Title 24, Part 6, California Energy Code, in regard to the design, construction, commissioning and acceptance testing, and full compliance with Title 20 in regard to appliances or lighting that might be installed or furnished as part of the scope of future development projects.
- To enable incorporation of these sustainability requirements into the design and building of new and renovated facilities, consultation with the Facilities Services Energy Office, Office of Sustainability, and Office of Physical and Environmental Planning (or a sustainable design charrette, depending on the size of a potential future development project) will be required early in the design phase of projects to ensure incorporation of sustainable features.

UC Berkeley Continuing Best Practices

UC Berkeley applies CBPs relevant to energy as part of the project approval process. Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts in Chapter 2, "Project Description," and later in this section, in Section 3.5.3, "Impact Analysis and Mitigation Measures." A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of energy impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of energy impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.5.2 Environmental Setting

PHYSICAL SETTING

Energy Types and Sources

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas. In 2021, approximately 36 percent of natural gas consumed in the State was used to generate electricity. Large hydroelectric powered approximately 9 percent of electricity and renewable energy from solar, wind, small hydroelectric, geothermal, and biomass combustion totaled 36 percent (PG&E 2023). In 2022, the Pacific Gas and Electric Company (PG&E) provided its customers with 38.3 percent eligible renewable energy (i.e., biomass combustion, geothermal, small scale hydroelectric, solar, and wind) and 7.6 percent and 4.8 percent from large scale hydroelectric and natural gas, respectively (PG&E 2023). The contribution of in- and out-of-State power plants depends on the precipitation that occurred in the previous year, the corresponding amount of hydroelectric power that is available, and other factors.

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. The use of these fuels is encouraged through various Statewide regulations and plans (e.g., Low Carbon Fuel Standard, AB 32 Scoping Plan). Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels, including:

- biodiesel,
- electricity,
- ethanol (E-10 and E-85),
- hydrogen,
- natural gas (methane in the form of compressed and liquefied natural gas),
- propane,
- renewable diesel (including biomass-to-liquid),
- synthetic fuels, and
- gas-to-liquid and coal-to-liquid fuels.

California has a growing number of alternative fuel vehicles through the joint efforts of CEC, CARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of December 2023, California contained over 44,400 alternative fueling stations (AFDC 2023).

Transportation Fuels

In 2021, the transportation sector comprised the largest end-use sector of energy in the State totaling 41.2 percent, followed by the industrial sector totaling 23.6 percent, the residential sector at 18.2 percent, and the commercial sector at 17.1 percent (EIA 2023). On-road vehicles use about 90 percent of the petroleum consumed in California. CEC reported retail sales of 473 million and 57 million gallons of gasoline and diesel, respectively, in Alameda County in 2022 (the most recent data available) (CEC 2023b).

Energy Service

Energy infrastructure on the UC Berkeley campus consists of several interconnected systems: electricity and natural gas are provided by PG&E, and power to some sites is provided by East Bay Community Energy and the UC wholesale power program; on-site PV arrays; in-building chillers; a cogeneration plant on the Campus Park producing steam and electricity that is powered by natural gas; and a steam plant on the Clark Kerr Campus.

Energy for the two commercial buildings on the project site is provided by PG&E. Energy for University Hall, which is now vacant, is provided by PG&E and a cogeneration plant on the Campus Park. The cogeneration plant produces steam and electricity that is powered by natural gas. See Section 3.15, "Utilities and Service Systems," for more detailed information on electrical and natural gas infrastructure specifically serving the project area.

ENERGY USE AND CLIMATE CHANGE

Scientists and climatologists have produced evidence that the burning of fossil fuels by vehicles, power plants, industrial facilities, residences, and commercial facilities has led to an increase of the earth's temperature. For an analysis of GHG production and the project's impacts on climate change, refer to Section 3.7, "Greenhouse Gas Emissions and Climate Change."

3.5.3 Impact Analysis and Mitigation Measures

METHODOLOGY

Energy related to the project would include energy directly consumed for space heating and cooling, electricity- and gas-powered equipment, and interior and exterior lighting of all proposed buildings. Transportation-related energy consumption includes the use of fuels and electricity to power cars, trucks, and public transportation. Energy would also be consumed by equipment and vehicles used during construction and routine maintenance activities.

Levels of construction- and operation-related energy consumption by the project are measured in megawatt-hours of electricity, therms of natural gas, gallons of gasoline, and gallons of diesel fuel. Energy consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod) version 2022.1 computer program, fuel estimates from CARB's EMission FACtors (EMFAC) model, and fuel-based emission factors from EPA (CAPCOA 2022, CARB 2022, EPA 2023).

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of State CEQA Guidelines, the project would have a potentially significant adverse energy impact if it would:

- result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation; or
- conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

ISSUES NOT DISCUSSED FURTHER

All potential issues related to energy and identified in the significance criteria are evaluated below.

IMPACT ANALYSIS

Impact 3.5-1: Implementing the project would not result in wasteful, inefficient, or unnecessary consumption of energy during construction or operation.

Construction

Energy use would be required during construction of the project. Most of the construction-related energy consumption would be associated with off-road equipment use and the transport of equipment and materials using on-road haul trucks. For example, energy would be required to transport construction equipment, waste, and excavated materials. The short-term energy expenditure required to construct the project would be nonrecoverable. Additional gasoline and diesel would be consumed for worker commute trips associated with project construction. As shown in Table 3.5-2, an estimated 39,131 gallons of gasoline (for worker trips) and 212,355 gallons of diesel fuel (for off-road equipment, hauling trips) may be used during project construction.

The energy needs for construction would be spread throughout the project site and over the course of implementation of the multi-year construction period. Although construction activities would require fuel and other energy sources, the energy needs for construction would be temporary and would not increase long-term energy demand in a wasteful or inefficient manner. There would be no atypical construction-related energy demand associated with the project construction, because construction would follow standard practices related to energy consumption. Nonrenewable energy would not be consumed in a wasteful, inefficient, or unnecessary manner when compared to other construction activities in the region. In addition, on-road gasoline and diesel fuel consumption associated with construction activities would decrease every year as the vehicle fleet becomes more fuel-efficient over time. There is no basis to conclude that construction would be wasteful of fuel or other energy resources; therefore, it is expected that only the necessary amount of fuel would be consumed to complete construction of the project.

Table 3.5-2 Construction Energy Consumption by Source

Source	Diesel (Total Gallons)	Gasoline (Total Gallons)
Equipment	102,584	-
Workers	11,833	39,131
Hauling and Material Delivery Trucks	97,938	-
Total	**212,355**	**39,131**

Source: Calculations by Ascent in 2023.

Operation

The operation of the project would be typical with respect to the use of electricity for space and water heating, appliances, lighting, and landscape maintenance activities. Indirect energy consumption would come from wastewater treatment and solid waste removal. Implementation of the project would increase electricity consumption in the region relative to existing conditions. The project would be expected to be operational in 2028. According to SB 100, California will require zero-carbon resources to supply 100 percent of electric retail sales to customers by 2045 (CEC 2023b). Additionally, per the UC Sustainability Practices Policy, electricity procured at or by UC Berkeley is required to be 100 percent carbon free by year 2025. Thus, as time goes on, energy sourced from the grid would continue to become cleaner.

Table 3.5-3 summarizes the anticipated energy use by sector associated with operation of the project. Energy expenditure for project operation would be typical for office, research and development, and restaurant uses and would include electricity for lighting, space and water heating, climate control, and landscape maintenance activities.

Table 3.5-3 Operation-Related Building Energy Consumption (2028)

Energy Sector	Energy Consumption	Units
Mobile (Gasoline)	41,340	gallons/year
Mobile (Diesel)	12,502	gallons/year
Electricity	6,396,056	kWh/year

Source: Calculations by Ascent in 2023.

To ensure that no wasteful, inefficient, or unnecessary consumption of energy would occur during project operation, the project would include several sustainable project features, including using native and/or adaptive and drought-resistant landscaping and achieving LEED-certified Gold to ensure buildings use less energy than conventional buildings. The project would be all-electric and would be supplied by 100 percent carbon free electricity. Implementation of the project would not include natural gas consumption. Therefore, operational energy consumption associated with project implementation would not be wasteful or inefficient.

In addition, the project would implement the following UC Berkeley utilities and service systems (USS) CBP to incorporate water conservation fixtures, systems, and plantings into the project design, which would ensure that the use of energy related to landscaping during operation would not be wasteful, inefficient, or unnecessary.

- **CBP USS-3**: UC Berkeley will continue to incorporate specific water conservation measures into project design to reduce water consumption and wastewater generation. This could include the use of special air-flow aerators, water-saving shower heads, flush cycle reducers, low-volume toilets, weather-based or evapotranspiration irrigation controllers, drip irrigation systems, and the use of drought resistant plantings in landscaped areas, and collaboration with the East Bay Municipal Utility District to explore suitable uses of recycled water.

Transportation Energy Use

With implementation of the project, UC Berkeley would require an increased amount of energy related to building occupants and visitors driving and taking public transportation to and from the project site. The project would provide bicycle racks along the sidewalks on three sides of the buildings. Long-term, secure bicycle parking spaces would also be located in the parking garage. Providing bicycle parking infrastructure would increase the opportunities for bicycle travel and support alternative modes of transportation. During long-term operation of the project, when passenger vehicles are required to be more efficient and cleaner through federal and state legislation requirements, energy consumption would also decrease. In addition, UC Berkeley has several goals to reduce single-occupancy vehicle trips. Moreover, the project would be in a Transit Priority Area near transit and surrounded by walkways and bikeways that would connect building occupants and visitors to the nearby Downtown Berkeley area. As such, the use of transportation-related energy during construction and operation associated with the project would not be wasteful, inefficient, or unnecessary.

Summary

Implementation of the project would result in energy consumption from construction activities, operations on the site, and transportation. Energy use during construction would be a one-time energy expenditure required to construct the new facility and would not include atypical construction-related energy demand. As noted above, the project would not include natural gas infrastructure or use. In addition, the project would be located in an area that is easily accessible via transit, biking, and walking.

According to Appendix F of the State CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall per capita energy consumption, decreasing reliance on oil, and increasing reliance on renewable energy sources. Construction and operation of the project would involve activities that promote the goals of decreasing per capita energy consumption, reliance on fossil fuels (gasoline and diesel), or increasing uses of renewable energy sources. For these reasons, the project would not result in wasteful, inefficient, or unnecessary consumption of energy during project construction or operation. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Relevant plans that pertain to the efficient use of energy include the State's 2022 Scoping Plan; the Energy Efficiency Action Plan, which focuses on energy efficiency and building decarbonization (CEC 2019); and the UC Sustainable Practices Policy, which seeks to reduce the UC's impact on the environment by promoting green building design, clean energy, climate action, and sustainable transportation (UC Berkeley 2023).

The 2022 Scoping Plan identified key actions necessary to achieve the state's goals, including moving to zero-emission transportation; phasing out the use of fossil gas for heating homes and buildings; providing communities with sustainable options for walking, biking, and public transit to reduce reliance on cars; continued investment in solar powered–infrastructure, wind turbine capacity, and other resources that provide clean, renewable energy to displace fossil-fuel fired electrical generation; and scaling up new renewable energy options that are available or may be available in the future.

The project would, at minimum, comply with the current Building Energy Efficiency Standards and CALGreen. It would incorporate water efficiency measures, such as low-flow toilets, sinks, and showers and efficient laundry washing machines, as well as native and drought-tolerant landscaping, all of which would reduce the energy required to treat, transport, and distribute water. In addition, the project would be LEED-certified Gold consistent with the UC Sustainable Practices Policy (Policy A. Green Building Design). The project would eliminate the use of natural gas and would be all-electric and would be supplied by 100 percent carbon free electricity consistent with Policy B (Clean Energy) of the UC Sustainable Practices Policy. Therefore, construction and operation of the project would not conflict with or obstruct implementation of relevant energy efficiency plans. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.6 GEOLOGY AND SOILS

This section evaluates the potential for implementation of the project to affect geology and soil resources. This section describes the regulatory framework and environmental setting, identifies criteria used to determine impact significance, and evaluates the potential geology and soil impacts. This section also examines impacts related to unstable soils, landslide, and erosion.

No comments related to geology and soils were received in response to the notice of preparation (NOP). The NOP and the comments received on the NOP are provided in Appendix A.

3.6.1 Regulatory Setting

FEDERAL

Earthquake Hazards Reduction Act (Public Law 95-124, 42 U.S.C. 7701 et Seq.)

The purpose of Earthquake Hazards Reduction Act is to reduce the risks of life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. The objectives of the program include: (1) the education of the public; (2) the development of technologically and economically feasible design and construction methods and procedures; (3) the implementation of a system for predicting damaging earthquakes and for identifying seismic hazards; (4) the development of model building codes; (5) the development of methods of mitigating the risks from earthquakes; (6) the increased use of existing scientific and engineering knowledge to mitigate earthquake hazards; and (7) the development of ways to assure the availability of affordable earthquake insurance.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 is intended to mitigate the hazard of surface fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault. The act delineates "Earthquake Fault Zones" (formerly called an Alquist-Priolo Special Study Zone) along faults that are "sufficiently active" and "well defined." The maps are distributed to all affected cities, counties, and state agencies for use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones and there can generally be no construction within 50 feet of an active fault trace; unless a site-specific investigation demonstrates the absence of a fault trace. The zones vary in width, but on average are about one-quarter mile wide.

Seismic Hazard Mapping Act

The Seismic Hazard Mapping Act of 1990 is intended to protect the public from the hazards of nonsurface fault rupture from earthquakes, including strong ground shaking, liquefaction, seismically induced landslides, or other ground failure. The California Geological Survey prepares and provides agencies with seismic hazard zone maps that identify areas susceptible to fault hazards other than surface rupture. The Seismic Hazard Mapping Act prohibits responsible agencies from approving projects within seismic hazard zones until a site-specific investigation is completed to determine if the hazard is present, and the inclusion, if a hazard is found, of appropriate mitigation.

California Building Code

Every state public agency enforcing building regulations must adopt the provisions of the California Building Code (CBC), which is Title 24, Part 2, of the California Code of Regulations. The most recent version is the 2022 CBC (effective January 1, 2023). The CBC is updated every three years and provides minimum standards to protect property and public safety by regulating the design and construction of excavations, foundations, building frames, retaining walls, and other building elements to mitigate the effects of seismic shaking and adverse soil conditions.

The CBC also contains provisions for earthquake safety based on factors including occupancy type, the types of soil and rock on-site, and the strength of ground shaking with specified probability of occurring at a site.

California Public Resources Code

Public Resources Code (PRC) Sections 5097.5 and 30244 include requirements for paleontological resource management. These statutes prohibit the removal of any paleontological site or feature without permission. As a result, agencies are required to comply with PRC Section 5097.5 for permit action, construction, and maintenance activities. PRC Section 5097.5 also establishes the removal of paleontological resources as a misdemeanor and requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, and district) lands.

California Division of Occupational Safety and Health

Construction activities are subject to occupational safety standards for excavation, shoring, and trenching, as specified in California Division of Occupational Safety and Health regulations in the California Code of Regulations, Title 8.

UNIVERSITY OF CALIFORNIA

UC Seismic Safety Policy

The UC system, including UC Berkeley, follows its adopted Seismic Safety Policy (Seismic Policy), most recently updated in 2021, with review from its Seismic Advisory Board (UC 2021). The Seismic Policy also sets the standards for new construction and renovation and whether an independent seismic peer reviewer is necessary for a given project. The 2021 Seismic Policy is consistent with and supportive of UC Berkeley's long-standing proactive approach to seismic issues by its requirement that every building with significant seismic performance deficiencies must be retrofitted, replaced, or evacuated no later than the year 2030.

The UC Berkeley Seismic Review Committee provides input to project developers and advice to the Campus Architect regarding the structural design of UC Berkeley facilities, with particular regard to seismic performance. Committee membership, appointed by the Chancellor, consists of faculty and emeriti from the disciplines of structural and civil engineering, with an additional faculty member from the College of Environmental Design.

The Seismic Review Committee is specific to UC Berkeley, and the Seismic Advisory Board is for the UC system. They are two different groups of engineers—the Seismic Review Committee reviews all relevant UC Berkeley projects, and the Seismic Advisory Board provides guidance to University of California Office of the President (UCOP) on seismic design, performance ratings, and rehabilitation, and assists in developing UCOP Seismic Safety policy and guidelines.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. Key sections of the Campus Design Standards relevant to geology and soils include restrictions on use of expansive soils, dewatering, prohibition of construction within 50 feet of a known active fault trace, and discouragement of construction on suspected fault zones or other earthquake hazard areas. Relevant sections of the Campus Design Standards are in Division 31.00.00, Earthwork; Division 33.40.00, Subdrainage; and Appendix G, the UC Berkeley Seismic Guidelines. The Seismic Guidelines provide technically sound, clear, and consistent requirements for design, retrofit, and evaluation of UC Berkeley buildings.

UC Berkeley Continuing Best Practices

UC Berkeley applies continuing best practices (CBPs) relevant to geology and soils as part of the project approval process. CBPs that are implemented as part of the project are identified in Chapter 2, "Project Description," and provided in Appendix B, "UC Berkeley Continuing Best Practices," of this EIR. Applicable CBPs, which include both those implemented as part of the project and those implemented as part of the ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts under Section 3.6.3, "Impact Analysis and Mitigation Measures."

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of geology and soil impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of geology and soil impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.6.2 Environmental Setting

A geotechnical investigation, "Geotechnical Investigation Report – Berkeley ClimatEnginuity Hub," has been conducted for the footprint of the proposed South Building by A3GEO in November 2023 (see Appendix F) (A3GEO 2023). This geotechnical report has been deemed representative of soils conditions on the entire project site. This section incorporates by reference the environmental setting from the geotechnical investigation as it applies to the project.

REGIONAL GEOLOGY

The project site is located in the San Francisco Bay Area (Bay Area). The Bay Area is characterized by hills and valleys that generally trend southeast/northwest. This characteristic topography is partly the result of the region's location at the boundary between the North American and Pacific crustal plates, which are in relative motion with respect to each other. Over geologic time, the topography of the region formed through a complex series of processes that have included deposition, accretion, faulting, folding, uplift, volcanism, and changes in sea level. San Francisco Bay and the adjacent flatlands presently occupy a structural depression between the East Bay Hills and approximately parallel hills of the San Francisco Peninsula and Marin County (A3GEO 2023).

The Bay Area includes three "basement" rock complexes: the Great Valley Complex, the Franciscan Complex, and the Salinan Complex. These rock complexes were formed during the Mesozoic Era (225 to 65 million years ago) and have been brought together by movement occurring along faults. The Mesozoic basement rock complexes are locally overlain by Cenozoic Era (younger than 65 million years) sedimentary and volcanic rocks. Since their deposition, the Mesozoic and Cenozoic rocks have been extensively deformed by repeated episodes of folding and faulting. Significantly, the Bay Area experienced several episodes of uplift and faulting during the late Tertiary Period (about 25 million to 2 million years ago), that produced the region's characteristic northwest-trending mountain ranges and valleys (A3GEO 2023).

World-wide climate fluctuations during the Pleistocene (about 1.8 million to 11,000 years ago) resulted in several distinct glacial periods. A lowering of sea level accompanied each glacial advance as water became stored in vast ice sheets. Melting of the continental glaciers during warm intervals caused corresponding rises in sea level. High sea levels favored rapid and widespread deposition in the bay and surrounding floodplains. Low sea levels during glacial advances steepened the gradients of streams and rivers draining to the sea thereby encouraging erosional downcutting. The most recent glacial interval ended about 15,000 years ago. Evidence suggests that during the maximum extent of this latest glaciation, sea level was 300 to 400 feet below its present elevation and the valley now occupied by San Francisco Bay drained to the Pacific Ocean more than 30 miles west of the Golden Gate (A3GEO 2023).

Near the beginning of the Holocene (about 11,000 years ago) the rising sea re-entered the Golden Gate, and sediments accumulated rapidly beneath the rising San Francisco Bay and on the surrounding floodplains. The sediments that now cover the bottom of the bay and blanket much of the adjacent lower flatlands are less than 11,000 years old. The Holocene-age surface deposits are generally less dense, weaker, and more compressible than adjacent/deeper Pleistocene-age soils that pre-date the last sea level rise (A3GEO 2023).

Regional Active Faults

In the Bay Area, the relative motion of the Pacific and North American crustal plates is presently accommodated by a series of active northwest-trending faults that exist over a width of more the 50 miles. Faults that are defined as active exhibit one or more of the following: 1) evidence of Holocene-age (within about the past 11,000 years) displacement, 2) measurable aseismic fault creep, 3) close proximity to linear concentrations or trends of earthquake epicenters, and 4) prominent tectonic-related aseismic geomorphology. Potentially active faults are defined as those that are not known to be active but have evidence of Quaternary-age displacement (within about the past 2 million years) (A3GEO 2023).

The major Bay Area active faults include the Hayward, Rogers Creek, San Andreas, San Gregorio, Concord-Green Valley, Calaveras, West Napa, and Greenville faults. Table 3.6-1 provides a summary of the approximate distances and directions from the project site to the major Bay Area active faults. As shown on Table 3.6-1, the closest regional active fault to the project site is the Hayward Fault, located approximately 1 mile to the east-northeast of the site.

Table 3.6-1 Approximate Distances and Directions from the Project Site to Bay Area Active Faults

Fault System	Approximate Distance from Project Site (miles)	Approximate Direct from Project Site
Hayward-Rodgers Creek	1	East-Northeast
Calaveras	13	East-Southeast
Concord-Green Valley	15	East-Northeast
Pleasanton	17	Southeast
Greenville – Clayton – Marsh Creek	17	East-Northeast
San Andreas	18	West-Southwest
West Napa	20	North-Northeast
San Gregorio	20	West-Southwest

Source: A3GEO 2023.

SEISMICITY

The project site is located within the seismically active Bay Area and will therefore experience the effects of future earthquakes. Earthquakes are the product of the build-up and sudden release of strain along a “fault” or zone of weakness in the earth's crust. Seismic energy may be released as soon as it is generated, or it may be accumulated and stored for long periods of time. Individual releases may be so small that they are detected only by sensitive instruments, or they may be violent enough to cause destruction over vast areas.

The Working Group on California Earthquake Probabilities has developed authoritative estimates of the magnitude, location, and frequency of future earthquakes in California, which are published in Uniform California Earthquake Forecast (UCERF) reports. Table 3.6-2 summarizes the most recent forecast (UCERF Version 3) of the likelihoods for one or more earthquake events of the specified magnitude occurring in the Bay Area in the next 30 years (starting in 2014). Table 3.6-3 summarizes the most recent forecast (UCERF Version 3) for the likelihoods for one or more earthquake events for the Hayward Fault.

Table 3.6-2 San Francisco Earthquake Forecast

Earthquake Magnitude (greater than or equal to)	30-Year Likelihood of One or More Earthquake Events
5.0	100%
6.0	98%
6.7	72%
7.0	51%
7.5	20%
8.0	4%

Note: % = percent

Source: USGS 2015.

Table 3.6-3 Hayward Fault Earthquake Forecast

Earthquake Magnitude (greater than or equal to)	30-Year Likelihood of One or More Earthquake Events
6.7	14.3%
7.5	3.6%
8.0	Less than 0.1%

Note: % = percent

Source: USGS 2015.

LOCAL GEOLOGY

The project site is located in Downtown Berkeley. During the development of Downtown Berkeley, which occurred during the mid to late 1800s, culverts were installed within creek beds, creeks were filled in, and the mostly rectangular grid of streets was laid out and graded. There is no record of how much fill was placed in specific areas in this initial stage of development, but generally deeper fills exist in former low-laying areas adjacent to creeks. Fills are also locally present within developed parcels as a consequence of previous grading, construction, and demolition activities.

Downtown Berkeley is located near the eastern edge of a broad, gently sloping alluvial plain deposited by steams flowing westward from the Berkeley Hills. The US Geological Survey (USGS) regional geologic map shows the near surface soils in the vicinity of the project site as alluvial and fluvial deposits of Holocene age. Pleistocene alluvium is mapped within the UC Berkeley campus approximately 250 feet east-northeast of the project site. The surficial deposits at the footprint of the South Building are mapped as Temescal Formation, a Quaternary (younger than about 1.8 million years) deposit described as “gravel, clayey; clay, sandy, silty; and sandy-clay-silt mixtures” (A3GEO 2023).

Franciscan complex bedrock, which is present near the ground surface within the UC Berkeley Campus Park to the east-northeast, underlies the alluvial deposits within the project site. Franciscan complex sandstone and Franciscan complex mélange are also mapped within the UC Berkeley Campus Park to the east of the project site. In the vicinity of the project site, the surface of Franciscan Complex rock is approximately 40 to 60 feet below street grades (A3GEO 2023).

GEOLOGICAL HAZARDS

Fault Surface Rupture

Surface fault rupture occurs when movement on a fault breaks through to the earth's surface. Under the Alquist-Priolo Earthquake Fault Zoning Act, California Geological Survey (CGS) produced 1:24,000 scale maps showing known active and potentially active faults and defining zones within which special fault studies are required. The nearest known active fault to the site is the Hayward Fault located approximately 1 mile to the east-northeast (Table 3.6-1). The project site is not located within the Alquist-Priolo Special Studies Zone (CGS 2023). The closest CGS seismic hazard zone for fault rupture is located near the base of the Berkeley Hills, approximately 3,000 feet east-northeast of the project site (A3GEO 2023).

Seismic Shaking

The project site is subject to potential seismic ground shaking similar to other areas in the seismically active Bay Area. The intensity of ground shaking will depend on the characteristics of the causative fault, distance from the fault, the earthquake magnitude and duration, and site-specific geologic conditions.

Liquefaction and Related Effects

Liquefaction refers to the sudden, temporary loss of soil strength during strong ground shaking. The strength loss occurs as a result of the build-up of excess pore water pressures and subsequent reduction of effective stress. While liquefaction most commonly occurs in saturated, loose, granular deposits, recent studies indicate that it can also occur in materials with relatively high fines content provided the fines exhibit lower plasticity. The effects of liquefaction can vary from cyclic softening resulting in limited strain potential to flow failure which causes large settlements and lateral ground movements. Lateral spreading occurs when liquefied soils near a free face (such as a stream channel) move horizontally toward the open area. The project site is not mapped within the liquefaction hazard zone identified as part of the seismic hazard mapping by CGS (CGS 2023). The project site is located in an urbanized area and is not located near a free face. The closest CGS Seismic Hazard Zone for liquefaction is mapped approximately 500 feet south-southeast of the project stie coincident with the interpreted location of the historic Strawberry Creek channel, which passes below Oxford Street south of Center Street (A3GEO 2023).

Landslides

Natural landslides occur when soils or bedrock lose strength in a sloping area (often during heavy rains or an earthquake), and gravity causes the materials to slide downhill. Human activities can also cause landslides; these activities include undercutting a hill, placing a heavy weight like fill at the top of a slope, or substantially increasing the amount of water in a hillside. The project site is not mapped within the landslide hazard zone identified as part of the seismic hazard mapping by CGS (CGS 2023). The closest CGS seismic hazard zone for earthquake-induced landslide is located near the base of the Berkeley Hills approximately 3,000 feet east-northeast of the project site (A3GEO 2023).

Expansive Soil

Expansive soils will shrink and swell with fluctuations in moisture content and are capable of exerting significant expansion pressures on building foundations, interior floor slabs and exterior flatwork. Distress from expansive soil movement can include cracking of brittle wall coverings (e.g., stucco, plaster, drywall), racked door and/or window frames, uneven floors, and cracked slabs. Flatwork, pavements, and concrete slabs-on-grade are particularly vulnerable to distress due to their low bearing pressures. Expansive soil also causes soil to creep on sloping ground.

The near-surface soils that existed through the footprint of the South Building prior to the construction of University Hall included organic soils and black near-surface clays, which typically have a high potential for expansion. The near-surface natural soil was removed during construction of University Hall. Organic and/or expansive soils may underlie portions of the surface parking lot to the west of University Hall (A3GEO 2023).

Erosion

Erosion can occur when rainfall or other sources result in the placement of a significant amount of water on a sloping, bare-earth surface. Eroded soils can cause damage if they enter a waterway or a storm drain facility that deposits the collected water and entrained sediment into San Francisco Bay. However, other than during construction or immediately after building demolition, soils on-site are already vegetated, leading to minimal erosion. During demolition and construction activities, special products are routinely placed at the perimeter of the work area and at storm drain inlets to capture any eroded soils before damage occurs.

Subsidence

Subsidence is the incremental vertical lowering of alluvial landscapes that is usually attributed to the overdraft of groundwater aquifers. The project site is located in the East Bay Municipal Water District (EBMUD) Groundwater

Sustainable Act coverage area within the East Bay Plain Subbasin (EBMUD 2022). The East Bay Plain Subbasin is not overdrafted, and current groundwater pumping is a relatively small fraction of estimated sustainable yield (EBMUD 2022). In general, upland areas such as the Berkeley Hills have experienced some tectonic uplift over time, while the adjacent alluvial plains and lowlands have experienced some subsidence (Alan Kropp & Associates 2020). According to a recent study using interferometric synthetic aperture radar (InSAR), the Berkeley area has undergone an average of about two millimeters/year of subsidence from 2007 to 2018 (Blackwell et al. 2020). Groundwater storage by EBMUD and statutory commitments to sustainable groundwater management practices reduce the potential for future land subsidence.

PALEONTOLOGICAL SETTING

Unique geologic features are those that are unique to the field of geology. Each rock unit tells a story of the natural processes operating at the time it was formed. The rocks and geologic formations exposed at the earth's surface or revealed by drilling and excavation are our only record of that geologic history. What makes a geologic unit or feature unique can vary considerably. For example, a geologic feature may be considered unique if it is the best example of its kind and has distinctive characteristics of a geologic principle that is exclusive locally or regionally, is a key piece of geologic information important to geologic history, contains a mineral that is not known to occur elsewhere in the region, or is used as a teaching tool. The project site has alluvial units (alluvial fan and fluvial deposits) (Graymer 2000), which are common throughout the region and area not considered to be unique.

Paleontological resources are fossils—that is, organisms or fragments, impressions, or traces of organisms preserved in rock. The UC Berkeley Campus Park is located on the western slope of the East Bay hills and the flatlands adjacent to these hills. The hillside areas contain various sedimentary and volcanic bedrock units at the ground surface or at the shallow depth, and the areas downslope are on a broad alluvial plain. The University of California Museum of Paleontology has records of over 500 paleontological localities within Alameda County (UCMP 2023). Besides illuminating the striking differences between California in the past and today, this abundant paleontological record has been vital in studies of extinction, ecology, and climate change.

3.6.3 Impact Analysis and Mitigation Measures

METHODOLOGY

The analysis of environmental impacts on geology and soil resources is based on information obtained from publicly available sources and site-specific geotechnical investigation conducted for the South Building. Impacts are assessed by evaluating potential impacts from unstable geology and soils, earthquakes, and landslides associated with the implementation of the project.

THRESHOLDS OF SIGNIFICANCE

A geology and soils impact would be significant if implementation of the project would:

- directly or indirectly cause potential substantial adverse impacts, including the risk of loss, injury, or death involving:
  - rupture of a known earthquake fault,
  - strong seismic shaking,
  - seismic-related ground failure, including liquefaction, or
  - landslides;
- result in substantial soil erosion or the loss of topsoil;

- 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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property;
- 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; or
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

ISSUES NOT DISCUSSED FURTHER

Septic Tanks or Alternative Wastewater Disposal Systems

The project would not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact related to the use of septic tanks or other wastewater disposal systems would occur. This issue is not discussed further.

IMPACT ANALYSIS

Impact 3.6-1: The project would not cause potential substantial adverse impacts involving the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, including liquefaction, or landslides.

Earthquake Fault Rupture

The project site is not located within the Alquist-Priolo Special Studies Zone (CGS 2023). The nearest known active fault to the site is the Hayward Fault located approximately 1 mile to the east-northeast (Table 3.6-1). The potential for fault surface rupture on the project site would be low. The project would not create or exacerbate fault rupture because no project activities would occur in the Alquist-Priolo Earthquake Fault Zone.

Seismic Ground Shaking

Seismic ground shaking would be produced during large earthquakes. The project site is located in the seismically active Bay Area. Therefore, the project site will likely experience seismic ground shaking similar to other areas in the Bay Area. As part of the project, UC Berkeley would implement the following geology CBPs to minimize adverse impacts resulting from seismic ground shaking.

- CBP GEO-1: UC Berkeley will continue to comply with the California Building Code and the University of California Seismic Safety Policy.
- CBP GEO-2: Site-specific geotechnical studies will be conducted under the supervision of a California Registered Certified Engineering Geologist or licensed geotechnical engineer and UC Berkeley will incorporate recommendations for geotechnical hazard prevention and abatement into project design.
- CBP GEO-3: The UC Berkeley Seismic Review Committee will continue to review all seismic and structural engineering design for new and renovated existing buildings on campus.
- CBP GEO-4: UC Berkeley will continue to use site-specific seismic ground motions for analysis and design of campus projects. Site-specific ground motions provide more current geo-seismic data than the U.S. Geological Survey (USGS) and are used for performance-based analyses.

The design of the South Building would be required to incorporate seismic recommendations to resist strong ground shaking as provided in the geotechnical investigation for the building site per CBP GEO-2. A site-specific geotechnical investigation would be required for the North Building and recommendations for seismic design would be implemented as required by CBP GEO-2. Implementation of GEO-4 would require UC Berkeley to use site-specific seismic ground motions analysis to inform project design. Implementation of CBPs GEO-1 and GEO-3 would ensure that the structures at the project site would be designed in accordance with applicable building codes and design practices for seismic safety. Compliance with the aforementioned CBPs would ensure that significant impacts related to seismic ground shaking would not occur.

Liquefaction and Related Ground Failure

The project site is not located in the liquefaction hazards zone identified as part of the seismic hazard mapping by CGS (CGS 2023). Lateral spreading occurs when liquefied soils are present near a free face (such as a stream channel), and the materials move in a horizontal fashion toward the open area. Because the project site is not located within a liquefaction zone and not located near a free face, the potential for localized lateral spreading to occur is low. The project is required to implement CBP GEO-1 and CBP GEO-3 (listed above), which require compliance with the University of California Seismic Safety Policy and California Building Code and require the Seismic Review Committee to review all seismic and structural engineering designs for new and renovated existing buildings on campus. Implementation of CBP GEO-1 and CBP GEO-3 would ensure that the structures at the project site would be designed in accordance with applicable building codes and design practices for seismic safety. Compliance with the aforementioned CBPs would ensure that significant impacts related to liquefaction and related ground failure would not occur.

Landslides

The project site is not located in the landslide hazard zone identified as part of the seismic hazard mapping by CGS (CGS 2023). The project would be required to implement CBP GEO-1 and CBP GEO-3 (listed above), which require compliance with the University of California Seismic Safety Policy and the California Building Code and require the Seismic Review Committee to review all seismic and structural engineering design for new and renovated existing buildings on campus. Implementation of CBP GEO-1 and CBP GEO-3 would ensure that the structures at the project site would be designed in accordance with applicable building codes and design practices for seismic safety. Compliance with the aforementioned CBPs would ensure that significant impacts related to landslides would not occur.

Summary

Based on the discussion above, the project would not result in significant impacts related to the risk of loss, injury, or death involving earthquake fault rupture, seismic shaking, seismic-related ground failure, and landslides with implementation of CBPs GEO-1 through GEO-4. Impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-2: Implementing the project would not result in substantial soil erosion or the loss of topsoil.

The project site is currently developed and covered with hardscape. There is no topsoil at the project site; therefore, effects related to the loss of topsoil are not discussed further. The analysis below focuses on potential soil erosion impacts during construction and operation.

Clearing, grading, excavation, and construction activities associated with the project would have the potential to expose soils and result in soil erosion. However, the project would disturb more than 1 acre of land, which would require compliance with the Construction General Permit. The Construction General Permit would require the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP would include best management practices to control sediment, erosion, and other hazardous materials contamination of runoff during construction.

The project site is in an urbanized area in Downtown Berkeley and would be required to implement post-construction site design, such as low impact development (LID) measures, per the F.5.g post-construction measures contained in the Small MS4 Permit. LID measures could include the use of permeable pavements, directing runoff to pervious areas, and the construction of bioretention areas. As discussed in Chapter 2, "Project Description," the project would result in approximately 7,000 square feet of pervious surfaces and approximately 74,000 square feet of impervious surfaces. This represents an approximately 8.6 percent net decrease in impervious surfaces from existing conditions. The pervious surfaces would allow stormwater to be treated on-site instead of becoming runoff and causing soil erosion. In addition, the project would be required to comply with the F.5.g requirements related to operation and maintenance procedures and agreement to maintain any stormwater treatment and control facilities in perpetuity. Furthermore, UC Berkeley would continue to require adherence to the Campus Design Standards through implementation of CBP GEO-9 listed below:

- **CBP GEO-9**: Campus construction projects must comply with the Campus Design Standards, which contain regulatory and other campus requirements for construction-phase and post-construction stormwater management.

The Campus Design Standards contains regulatory and other campus requirements for construction-phase and post-construction stormwater management. Compliance with the Construction General Permit requirements, Small MS4 Permit requirements, and CBP GEO-9 would ensure that potential erosion and siltation effects from the project would not cause substantial adverse effects involving erosion or the loss of topsoil; therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-3: The project would not be located on a geologic unit or soil that is unstable or that would become unstable due to the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Impacts related to landslides, lateral spreading, and liquefaction are discussed under Impact 3.6-1 and concluded to be less than significant. Subsidence is usually attributed to the overdraft of groundwater aquifers. The project site is located within the East Bay Plain Subbasin. The subbasin is not overdrafted, and current groundwater pumping is a relatively small fraction of estimated sustainable yield (EBMUD 2022). The project would implement CBP GEO-2 (listed above under Impact 3.6-1), which requires incorporation of geotechnical recommendations (e.g., foundation design and fill requirements) into the design of the South Building to prevent risks associated with locating a structure on unstable soil. A site-specific geotechnical investigation would be required for the North Building and recommendations for geotechnical hazards prevention would be incorporated into the project design as required by CBP GEO-2.

The project would also implement CBPs GEO-1 and CBP GEO-3 (listed above under Impact 3.6-1), which require compliance with the University of California Seismic Safety Policy and the California Building Code and require the Seismic Review Committee to review all seismic and structural engineering designs for new and renovated existing buildings on campus. Implementation of CBPs GEO-1 and CBP GEO-3 would ensure that the structures at the project site would be designed in accordance with applicable building codes and design practices for structural safety.

Based on the discussion above, compliance with the CBPs GEO-1, GEO-2, and GEO-3 would ensure that impacts related to locating the project 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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-4: The project would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property.

The geotechnical investigation conducted for the South Building indicated that expansive soils may underlie portions of the existing surface parking lot within the project site (A3GEO 2023). As discussed in Impact 3.6-3 above, implementation of CBP GEO-2 would ensure that geotechnical recommendations related to foundation design and fill requirements would be incorporated into the design of the South Building to prevent risks associated with locating a structure on expansive soil. Per CBP GEO-2, a site-specific geotechnical investigation would be required for the North Building and recommendations for geotechnical hazards prevention would be incorporated into the building design. In addition, implementation of CBPs GEO-1 and GEO-3 would ensure the structures at the project site would be designed in accordance with applicable building codes and design practices for structural safety. Implementation of the CBPs would ensure that impacts associated with the presence of expansive soils would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-5: Implementing the project would not destroy a unique paleontological resource or site or unique geologic feature.

As discussed in Section 3.6.2. "Environmental Setting," the project site is underlain by alluvial soils, which are common in the Bay Area and are not considered unique geologic units. However, there is a potential for paleontological resources to be discovered at the project site during project construction due to the abundant paleontological record (over 500 paleontological localities) that has been found in Alameda County. The project would implement the following CBP GEO-10:

- **CBP GEO-10**: In the event that a unique paleontological resource is identified during project planning or construction, the work will stop immediately, and the find will be protected until its significance can be determined by a qualified paleontologist. If the resource is determined to be a "unique resource," a mitigation plan will be formulated pursuant to guidelines developed by the Society of Vertebrate Paleontology and implemented to appropriately protect the significance of the resource by preservation, documentation, and/or removal, prior to recommencing activities. The plan will be prepared by the qualified paleontologist and submitted to the UC Berkeley project manager for review and approval prior to initiation or recommencement of construction activities in the area of effect.

CBP GEO-10 establishes procedures to be followed in the event that a unique paleontological resource is discovered. As described above, implementation of CBP GEO-10 would require stopping work immediately in the event that a unique paleontological resource is discovered and requires that the find be protected until its significance can be determined by a qualified paleontologist. Therefore, implementation of CBP GEO-10 as part of the project would ensure that no significant impacts on paleontological resources would occur. Therefore, the project would not destroy unique paleontological resources or unique geologic features. Impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.7 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section presents a summary of regulations applicable to greenhouse gas (GHG) emissions; a summary of climate change science and GHG emissions sources in California; quantification of project-generated GHGs and discussion about their contribution to global climate change; and analysis of the project's resiliency to climate change-related risks. In addition, mitigation measures are recommended to reduce the project's contribution to climate change.

No comments related to GHG emissions and climate change were received in response to the notice of preparation (NOP). The NOP and comments received on the NOP are provided in Appendix A.

3.7.1 Regulatory Setting

GHG emissions in California are regulated by federal, state, regional, and local government agencies. These agencies aim to reduce GHG emissions to lessen the impact of global climate change through legislation, planning, policymaking, education, and a variety of programs. The regulations and the agencies responsible for regulating GHGs within the project site are discussed below and are applicable, unless otherwise noted.

FEDERAL

Supreme Court Ruling – Carbon Dioxide Is an Air Pollutant

In *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 UShttps://en.wikipedia.org/wiki/United_States_Reports 497 (2007), the Supreme Court of the United States ruled that carbon dioxide (CO_2) is an air pollutant as defined under the federal Clean Air Act (CAA) and that the US Environmental Protection Agency (EPA) has the authority to regulate GHG emissions.

In 2010, EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the federal CAA.

National Highway Traffic Safety Administration

The National Highway Traffic Safety Administration regulates vehicle emissions through the Corporate Average Fuel Economy (CAFE) Standards. On April 2, 2018, the EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, the US Department of Transportation and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks by increasing the stringency of the standards by 1.5 percent per year from models 2021 through 2026.

The CAA grants California the ability to enact and enforce stricter fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard (see discussion under "State" below for specific California standards), the state applies to EPA for a waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revoked California's existing waiver to implement its own vehicle emission standard. Part Two of the SAFE Rule established a standard to be adopted and enforced nationwide (84 Federal Register [FR] 51310). Pending several legal challenges to Part One of the SAFE Rule and administrative turnover, on December 21, 2021, the NHSTA published its CAFE Preemption Rule, which finalizes the repeal of the SAFE Rule Part 1 allowing California to continue procuring a waiver from EPA through the CAA to enforce more stringent emissions standards. Also, on April 1, 2022, the Secretary of Transportation unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks. These new standards require new vehicles sold in the US to average at least 40 miles per gallon and apply to all states except those that enforce stricter standards.

STATE

Plans, policies, regulations, and laws established by the state agencies are generally presented in the order they were established.

Statewide GHG Emission Targets and Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). Executive Order (EO) S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. This target was superseded by AB 1279, which codifies a goal for carbon neutrality and reduction of emissions by 85 percent below 1990 levels by 2045. These targets are in line with the scientifically established levels needed in the US to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015).

California Air Resources Board (CARB) adopted the Final 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) on December 16, 2022, which traces the state's the pathway to achieve its carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045 using a combined top-down, bottom-up approach under various scenarios. It identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals.

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, as summarized below.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles than EPA. In addition, the program's zero-emission vehicle (ZEV) regulation requires battery, fuel cell, and plug-in hybrid electric vehicles (EVs) to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2018a). In August 2022, CARB adopted the Advanced Clean Cars II (ACC II) program, which sets sales requirements for ZEVs to ultimately reach the goal of 100 percent ZEV sales in the state by 2035.

EO B-48-18, signed into law in January 2018, requires all state entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen-fueling stations and 250,000 EV-charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

CARB adopted the Low Carbon Fuel Standard in 2007 to reduce the carbon intensity of California's transportation fuels. Low-carbon intensity fuels emit less CO_2 than other fossil fuel–based fuels such as gasoline and fossil diesel. The Low Carbon Fuel Standard applies to fuels used by on-road motor vehicles and off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

In addition to regulations that address tailpipe emissions and transportation fuels, the state legislature has passed regulations to address the amount of driving by on-road vehicles. Since passage of SB 375 in 2008, CARB requires metropolitan planning organizations to develop and adopt sustainable communities strategies as a component of the federally-prepared regional transportation plans to show reductions in GHG emissions from passenger cars and light-duty trucks in their respective regions for 2020 and 2035 (CARB 2018b). These plans link land use and housing allocation to transportation planning and related mobile-source emissions. The Metropolitan Transportation Association/Association of Bay Area Governments (MTC/ABAG) serves as a combined entity fulfilling the metropolitan planning organizations requirements for the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. Under the most recent targets of SB 375 (i.e., achieve a 10-percent and 19-percent below 2005 per capita reduction in automobile emissions by 2020 and 2035, respectively), MTC/ABAG completed and adopted its most recent Regional Transportation Plan/Sustainable Communities Strategy, Plan Bay Area 2050, in 2021 (MTC/ABAG 2021). CARB's technical evaluation of Plan Bay Area 2050 confirmed that the plan was sufficient to meet the reduction targets of SB 375 (CARB 2022).

Legislation Associated with Electricity Generation

The state has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018).

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Energy Code. The code was established by the California Energy Commission (CEC) in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy-efficiency standards for residential and nonresidential buildings. CEC updates the California Energy Code every 3 years, typically including more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions.

The 2022 California Energy Code went into effect on January 1, 2023. The 2022 California Energy Code advances the onsite energy generation progress started in the 2019 California Energy Code by encouraging electric heat pump technology and use, establishing electric-ready requirements when natural gas is installed, expanding solar photo voltaic system and battery storage standards, and strengthening ventilation standards to improve indoor air quality. CEC estimates that the 2022 California Energy Code will save consumers $1.5 billion and reduce GHGs by 10 million metric tons of carbon dioxide equivalent over the next 30 years (CEC 2021).

California Green Building Standards (Title 24, Part 11)

The California Green Building Standards, also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandatory codes) developed by CEC that provides green building standards for statewide residential and nonresidential construction. The current version is the 2022 CALGreen Code, which took effect on January 1, 2023. As compared to the 2019 CALGreen Code, the 2022 CALGreen Code strengthened sections pertaining to EV and bicycle parking, water efficiency and conservation, and material conservation and resource efficiency, among other sections of the CALGreen Code. The CALGreen Code sets design requirements equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality. These codes are adopted by local agencies that enforce building codes and used as guidelines by state agencies for meeting the requirements of EO B-18-12.

UNIVERSITY OF CALIFORNIA

UC Sustainable Practices Policy

In 2003, the University of California Office of the President (UCOP) adopted a comprehensive policy of detailed guidelines for Green Building Design and Clean Energy Standards (now the UC Sustainable Practices Policy), including an annual sustainability reporting requirement (UCOP 2023). The policy covers the areas of green building design, clean energy, climate action, sustainable transportation, and sustainable building and laboratory operations for campuses, zero waste, sustainable procurement, sustainable foodservices, sustainable water systems, sustainability at UC health, general sustainability performance assessment, health and wellbeing, anti-racism, diversity, equity, and inclusion (UCOP 2023). This policy has been revised several times; the most recent version became effective in July 2023, which replaced the former goal of achieving carbon neutrality for Scopes 1 and 2 by 2025 with a new set of targets and requirements aligned with the latest state goals under AB 1279 and the 2022 CARB Scoping Plan of achieving net-zero greenhouse gas emissions no later than 2045. The 2023 UC Sustainable Practices Policy reflects the University's desire to prioritize direct, total emissions reductions without the reliance on carbon offsets to the extent feasible and commits UC to implementing actions intended to minimize the UC system's impact on the environment and reduce its dependence on nonrenewable energy.

The UC Sustainable Practices Policy establishes guidelines and includes climate change goals for all campuses that are consistent with, or would exceed, the latest state targets. The UC Sustainable Practices Policy requires each campus to reduce GHG emissions from all scopes 90 percent by 2045 (from a 2019 baseline) and neutralize any remaining emissions through carbon removal. To support this effort, the UC Sustainable Practices Policy requires each campus to prepare a decarbonization study, currently under preparation, that will be used to establish by January 1, 2025 new interim reduction targets for 2030, 2035, and 2040; update and adopt climate action plans before 2026 with measures to achieve these targets; and allocate funds for direct emissions reductions. Specifically, UC Berkeley's decarbonization study will address replacing the natural gas-powered cogeneration plant with a new, clean and green resilient energy system aimed at eliminating the primary source of Scope 1 emissions on campus.[1]

Unchanged in the 2023 update to the UC Sustainable Practices Policy, is that all campuses and UCOP will purchase 100 percent clean electricity beginning in 2025 to reduce Scope 2 emissions. UC Berkeley's Scope 3 emissions reduction targets remain aligned with the latest State of California's goals and policies to achieve net-zero statewide emissions by 2045 or sooner.[2] Additionally, the 2023 UC Sustainable Practices Policy sets new requirements and goals relevant to GHG emissions reduction (UCOP 2023) for Scope 3 emissions from landfill waste. Lastly, UC Berkeley also includes water conveyance and wastewater treatment in its Scope 3 emissions reporting, to which the systemwide reduction targets will apply.

Under the 2023 Sustainable Practices Policy, voluntary carbon offsets may be purchased to meet obligations under CEQA, achieve LEED certification, or for other purposes, but will not be counted towards reduction targets except for those used to meet regulatory requirements by CARB or direct carbon removals used to negate residual emissions (not to exceed 10 percent) before 2045 (UCOP 2023).

UC Strategic Energy Plan

In February 2009, the UC Strategic Energy Plan was prepared for all UC campuses to fulfill the goal of the UC Sustainable Practices Policy to implement energy efficiency projects in existing buildings. The initial goal for the retrofit projects was to reduce systemwide, growth-adjusted energy consumption by 10 percent or more by 2014 from the year 2000 base consumption level. The UC Strategic Energy Plan analyzed energy use and GHG trends and identified potential energy efficiency retrofit projects at all buildings over 50,000 square feet (primarily lighting, HVAC, commissions, and central plant measures) for all UC campuses. Energy savings, GHG emissions savings, and financial returns were estimated for hundreds of projects, which are grouped into Tier 1 (committed projects to be completed over the next six years) and Tier 2 (additional planned projects) based on their savings and financial payback. The UC Strategic Energy Plan project list is intended to be regularly updated by each campus to evaluate the feasibility of additional energy-saving measures.

UC Berkeley Climate Action Plan

In the fall of 2007, UC Berkeley prepared its first climate action plan, 2007 Cal Climate Action Partnership Feasibility Study, to address the near-term requirement of the UC Sustainable Practices Policy for submittal of a climate action plan. In 2009 the UC Berkeley Office of Sustainability prepared the 2009 Climate Action Plan (UC Berkeley 2009). The 2009 Climate Action Plan included an initial goal of reducing campus emissions to 1990 levels by 2014, faster than required under AB 32. The 2009 Climate Action Plan also began the framework for carbon neutrality at UC Berkeley by providing progressively lower emissions until climate neutrality is achieved by year 2050 from Scopes 1, 2 and 3. Since 2008 UC Berkeley has implemented energy efficiency measures that have reduced carbon emission by 15,000 tons. Through actions under the 2009 Climate Action Plan, UC Berkeley reduced its emissions below 1990 levels in 2014, well in advance of AB 32 statewide reduction targets (1990 levels by 2020). By 2028, UC Berkeley plans to switch to a new clean and resilient energy system that will phase out fossil fuels. As discussed above, a major update to the Climate Action Plan is underway.

[1] UC Berkeley received a capital investment of $249 million from the State of California. The Berkeley Clean Energy Campus Project is in the technical planning stage.

[2] Scope 3 emissions at UC Berkeley under the previous UC Sustainable Practices Policy (as reflected in the 2020 UC Berkeley Sustainable Plan) were intended to be eliminated by 2050, primarily through the purchase of voluntary carbon offsets.

UC Berkeley Sustainability Plan

The UC Berkeley Sustainability Plan (2020 Sustainability Plan) is an update to UC Berkeley's 2016 Carbon Neutrality Planning Framework. The UC Berkeley Sustainability Plan guides future work on campus relative to UC Berkeley's carbon neutrality goals. The 2020 Sustainability Plan provides a clear structure to articulate the vision, goals, and corresponding strategies to become more sustainable and align with systemwide UCOP Sustainability Practices Policy Changes (UC Berkeley 2020). The 2020 Sustainability Plan also integrates UC Berkeley–specific goals that exceed the UC policies, including climate and resiliency strategies for UC Berkeley. Table 3.7-1, UC Berkeley 2020 Sustainability Plan Goals, identifies the UC and UC Berkeley–specific sustainability goals currently in place.

Table 3.7-1 UC Sustainability Goals and UC Berkeley 2020 Sustainability Plan Goals[3]

University of California Goals	UC Berkeley Goals
Climate and Resiliency	
▶ Achieve minimum 90% reduction in total emissions relative to 2019 levels for scopes 1, 2, and 3 no later than 2045. Prioritize direct actions to reduce Scope 1 emissions. ▶ Beginning 2025 through 2030, allocate funding to achieve direct emissions reductions.	▶ By 2026 produce an updated campus climate action plan that considers reductions in emissions from Scopes 1, 2, and 3 sources, climate resiliency, environmental justice, sustainable development goals, and a path to zero carbon operations. ▶ Develop an actionable plan to decarbonize the main campus energy system. ▶ Plan for climate resilience to address impacts of increased storm intensity and longer periods of drought and heat.
Efficiency and Clean Energy	
▶ Eliminate Scope 2 emissions with the purchase of 100 percent clean electricity by 2025. ▶ Reduce energy-use intensity of campus space by 2% annually. ▶ Install additional on-site renewable electricity supplies and energy storage systems whenever cost-effective and/or supportive of the location's Climate Action Plan or other goals. ▶ Beginning in 2025, each campus and UCOP will use UCOP-procured biomethane as a transition fuel to partially replace fossil gas. UC's use of UCOP-supplied biomethane will conclude before 2040. UC locations will report annual Scope 1 emissions to UCOP and the impact that biomethane use has on those emissions. ▶ New equipment requiring liquid cooling will not use once-through or single-pass cooling systems.	▶ By 2020 procure 100% clean electricity for eligible accounts. ▶ By 2050 the campus will use only 100% clean, renewable energy. ▶ Major modifications to an existing building will reduce the affected space's energy use by a minimum of 2%. Medium modifications will result in "No Net Increase" to energy use. Minor Modifications that impact building energy use will strive to achieve the "No Net Increase" energy goal.
Transportation: Fleet	
▶ Zero emission or hybrid vehicles will account for at least 50% of all new light duty vehicle acquisitions. ▶ All sedans and minivan acquisitions will be zero-emission or plug-in hybrid vehicles, except for public safety vehicles with special performance requirements.	▶ By 2030 eliminate diesel use in fleet vehicles. ▶ By 2030 all low-speed neighborhood vehicles (including non-licensed carts) will be all electric or zero-emission.
Transportation: Commute	
▶ By 2025, reduce the percentage of employees and students commuting by single-occupant vehicle (SOV) by 10% relative to 2015 SOV commute rates. ▶ Reduce SOV commute rate to no more than 40%of employees and no more than 30% of all employees and students by 2050.	▶ Reduce employee drive alone rate to 36% by 2025.

[3] This table has been updated to reflect the updated 2023 UC Sustainable Practices Policy goals.

University of California Goals	UC Berkeley Goals
(In other words, 60% of employees and 70% of employees and students will use alternative commute modes). ▶ Promote purchases and support investment in alternative fuel infrastructure. ▶ By 2025, strive to have at least 4.5% of commuter vehicles be ZEV. ▶ By 2050, strive to have at least 30% of commuter vehicles be ZEV.	
Transportation: Air Travel	
▶ Recognizing that flexible work arrangements, including telecommuting, are a low-cost, effective way to reduce emissions and carbon footprint, each location should review and update local employee telecommute and flexible work policies, guidelines, procedures, and other applicable documents to normalize and promote telecommuting options and other flexible scheduling, as aligned appropriately based on business needs.	▶ Offset a portion of business air travel carbon emissions. ▶ Reduce emissions from business air travel by 10% by 2025.
Built and Natural Environment: Buildings	
▶ All new buildings and major modifications will achieve a minimum of LEED Gold certification. Renovations shall achieve a minimum LEED ID+C Certified. ▶ All new buildings and major modifications will be designed and constructed to meet the whole-building energy performance targets or outperform the California Building Code energy efficiency standards by at least 20%. ▶ No new building or major modification off of the main campus energy system will use on-site fossil fuel combustion (e.g., natural gas) for space and water heating (see Berkeley accelerated goal).	▶ All new buildings and major, medium and small modifications will maximize energy efficiency. ▶ All new buildings and major modifications off of the main campus energy system will eliminate carbon emissions through no onsite fossil fuel combustion for space and water heating, laundry and cooking.
Built and Natural Environment: Land	
▶ All undergraduate campuses must achieve an Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment and Rating System's (AASHE STARS) Gold rating and strive for Platinum.	▶ Plan every new project to serve as a model of resource conservation and environmental stewardship. ▶ Enhance flora and fauna biodiversity and have proactively responsive preservation programs to address changing conditions such as climate disruption. ▶ Manage Strawberry Creek as an open, natural-appearing creek and riparian corridor. ▶ Advocate for multi-disciplinary living lab restoration research and learning opportunities on campus lands. ▶ Increase awareness and appreciation of the campus open spaces and natural areas and promote inclusive culturally responsive experiential opportunities for the community.
Built and Natural Environment: Water	
▶ Reduce growth-adjusted potable water consumption 36% by 2025, compared to a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08. Locations that achieve this target early are encouraged to set more stringent goals to further reduce potable water consumption.	▶ By 2022 produce a Sustainable Water Action Master Plan to include a menu of water saving and reuse recommendations and reduction goal targets to go beyond the UC goal. ▶ By 2022 produce a Stormwater and Green Infrastructure Master Plan to identify best practices and catalyze multibenefit projects.

<table>
<tr><th>University of California Goals</th><th>UC Berkeley Goals</th></tr>
<tr><td>▸ Strive to reduce potable water used for irrigation by converting to recycled water, implementing efficient irrigation systems, drought-tolerant plantings, and turf removal.
▸ Develop and maintain a Water Action Plan.</td><td>▸ Create learning and research opportunities and elevate water as a sustainability priority.</td></tr>
<tr><td colspan="2">Sustainable Services: Green Labs</td></tr>
<tr><td>▸ Implement an ongoing Green Lab Assessment Program supported by a department on campus to assess operational sustainability of research groups and the laboratories and other research spaces they use.</td><td>▸ UC Berkeley Green Labs program will engage multiple partners in greener research and environmental stewardship within as many labs as possible. Key areas for improvements: engagement and green labs certification; procurement of greener consumables and equipment; energy and water efficiency; and waste reduction.</td></tr>
<tr><td colspan="2">Sustainable Services: Green Operations</td></tr>
<tr><td>▸ Each campus will seek to certify as many buildings as possible through the LEED Operations and Maintenance rating system within budgetary constraints and eligibility limitations.</td><td>▸ Improve sustainability of building and grounds through maintenance, cleaning, and operational actions.
▸ Maximize the points available in the related operations categories of STARS.</td></tr>
<tr><td colspan="2">Sustainable Services: Waste</td></tr>
<tr><td>▸ Achieve zero waste by prioritizing reduce, reuse, and then recycle and compost (or other forms of organic recycling) by the following:
▪ reduce 25% per capita from FY2015/16 levels by 2025,
▪ reduce 50% per capita from FY2015/16 levels by 2030, and
▪ divert 90% of municipal solid waste from the landfill.
▸ The distribution of plastic bags is prohibited in all retail and foodservice establishments in campus facilities or located on University-owned land.
▸ Replace disposable single-use plastic foodware accessory items in all foodservice facilities with reusables or locally compostable alternatives and provide only upon request no later than July 1, 2024.
▸ Provide reusable foodware items for food consumed onsite at dine-in facilities and to-go facilities no later than July 1, 2024.
▸ Replace single-use plastic foodware items with reusable or locally compostable alternatives at to-go facilities no later than July 1, 2024.
▸ Phase out the procurement, sale and distribution of single-use plastic beverage bottles. Non-plastic alternatives will be locally recyclable or compostable.</td><td>▸ Eliminate all nonessential, single-use plastic for which there is a viable alternative by end of calendar year 2030.
▸ Maximize the composting, on-site use, and tracking of organic landscape materials.</td></tr>
<tr><td colspan="2">Health & Sustainability: Food</td></tr>
<tr><td>▸ By 2030, 25% of food spend will be on sustainable food products while maintaining accessibility and affordability for all students.
▸ Each campus and health location shall strive to reduce greenhouse gas emissions of their food purchases through globally-inspired, culturally-acceptable plant-forward menus.
▸ Campuses will include the above goals in lease language as new leases and contracts are negotiated or existing leases are</td><td>▸ All covered food service entities comply with the Food & Beverage Choices policy to provide nutritious food choices on campus.
▸ Enhance knowledge and improve access to nutritious, sustainable, and plant-forward food options and menus to the campus community, including basic needs. Increase healthy, just, and sustainable event catering.
▸ Develop accessible garden amenities on campus.</td></tr>
</table>

University of California Goals	UC Berkeley Goals
renewed and work with existing tenants to advance sustainable foodservice practices as much as possible.	▶ Reduce post-consumer food waste. ▶ Expand food related learning and living lab opportunities.
Health & Sustainability: Health & Wellness	
▶ Locations will follow the provisions of the Zero Waste sections of this Policy, including eliminating the use of packaging foam and single use plastic product. ▶ Suppliers that operate or maintain vending machines on UC locations will ensure an increasing supply of beverages and food in a vending machine that meet the UC Healthy Vending Guidelines for Healthy Spend.	▶ Promote and expand health and wellness options in infrastructure and practices for faculty, staff, and students.
Culture & Learning: Academics & Research	
▶ Maintain a certified Association for AASHE Sustainability Tracking, STARS report and achieve Gold rating.	▶ Support the development, expansion and participation in sustainability and climate degrees and courses. ▶ Expand opportunities for experiential environmental and sustainability learning and student research. ▶ Maximize the points available in the Academics and Research categories of STARS.
Culture & Learning: Diversity, Equity, & Inclusion	
▶ Maintain a certified Association for AASHE Sustainability Tracking, STARS report and achieve Gold rating. ▶ Complete a e diversity, equity, inclusion, and justice (DEIJ) assessment of the existing sustainability policy. Develop goals that incorporate principles of anti-racism, diversity, equity, and inclusion into specific areas of this Policy, as appropriate, by 2025. Include a DEIJ impact analysis as part of any addition to or revision of this Policy.	▶ Situate environmental and social justice as central pillars of campus sustainability efforts, including in operations/administration, learning activities, and physical planning. ▶ Cultivate an authentic sense of belonging and strengthen diversity, equity, and inclusion in sustainability spaces for all UC Berkeley undergraduate, graduate and professional student, faculty, and staff while contributing to sustainable practices and environmental issues. ▶ Maximize the points available in the Diversity and Affordability categories of STARS.
Culture & Learning: Engagement	
▶ Maintain a certified Association for AASHE Sustainability Tracking, STARS report and achieve Gold rating.	▶ Make sustainability a guiding principle and core value for UC Berkeley's community and operations. ▶ Engage the broad and diverse campus community in a culture of sustainability through partnerships to include but not limited to People & Culture, Student Affairs, Athletics, Administration, Community Relations, and the Academic Senate. ▶ Maximize the points available in the Engagement categories of STARS.

Note: % = percent

UC Berkeley Energy Policy

UC Berkeley has adopted a policy on energy use to ensure commitment to energy efficiency. The UC Berkeley Energy Use Policy creates requirements for campus departments and a specific framework to support energy and carbon-efficient decisions in accordance with the UC Sustainable Practices Policy, UC Berkeley 2021 Long Range Development Plan (LRDP), Campus Master Plan, and Climate Action Plan. Primary offices responsible for the implementation of this UC Berkeley Energy Use Policy are the Energy Office, Building Department, Maintenance

Operations of Facilities Services, and Capital Projects. The UC Berkeley Energy Use Policy outlines energy requirements and guidelines for:

- existing building operations;
- new construction;
- large, medium, and small renovations;
- clean energy supply;
- supply chain management and information technology; and
- laboratories.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing UC Berkeley buildings, infrastructure, grounds, and maintenance issues. The Design Standards state that UC, including UC Berkeley, has a goal of reducing carbon emissions.

REGIONAL

Plan Bay Area

ABAG is the official comprehensive planning agency for the San Francisco Bay Area, which is composed of the nine counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma, and contains 101 jurisdictions. ABAG produces growth forecasts on four-year cycles for use by other regional agencies, including the Metropolitan Transportation Commission (MTC) and the Bay Area Air Quality Management District (BAAQMD), for project funding and regulatory decisions. The general plans, zoning regulations, and growth management programs of local jurisdictions inform the ABAG projections. The ABAG projections are also developed to reflect the impact of "smart growth" policies and incentives that could be used to shift development patterns from historical trends toward a better jobs-housing balance, increased preservation of open space, and greater development and redevelopment in urban core and transit-accessible areas throughout the San Francisco Bay Area.

ABAG and MTC adopted Plan Bay Area 2050 in October 2021, which serves as the Bay Area's Regional Transportation Plan/Sustainable Community Strategy (ABAG and MTC 2021). Priority Development Areas and Transit Priority Areas provide an implementing framework for Plan Bay Area 2050. The project site is located within a Priority Development Area and a Transit Priority Area (Figure 2-2). Plan Bay Area 2050 projects approximately 60 percent of jobs are expected to be located within walking distance of high-quality transit (ABAG and MTC 2021). Between 2015 and 2050, 22 percent of new jobs in the Bay Area are anticipated to be located in Alameda County (ABAG and MTC 2022).

BAAQMD 2022 CEQA Guidelines

BAAQMD is the primary agency responsible for addressing air quality concerns in the San Francisco Bay Area. Its role is discussed further in Section 3.3, "Air Quality." BAAQMD also recommends methods for analyzing project-related GHG emissions in CEQA analyses and recommends multiple GHG reduction measures for land use development projects. The BAAQMD's 2022 CEQA Guidelines (CEQA Guide) provides a qualitative approach to assess a project's cumulative contribution to climate change for CEQA analyses (BAAQMD 2022). The CEQA Guide is intended to be used to uniformly evaluate the significance of operation-related emissions from land use development projects. For land use development projects, BAAQMD recommends that, either as a project design feature or recommended mitigation, projects include the following measures:

- elimination of on-site natural gas infrastructure to power appliances;
- installation of EV charging stations meeting the Tier 2 requirements of the most recent version of Part 6 of the Title 24 California Building Code, CALGreen;
- no impacts from the unnecessary, wasteful, or inefficient use of energy resources; and

- achievement of the VMT reductions established by the Governor's Office of Planning and Research for residential (15 percent from a regional average), commercial (15 percent from a regional average), and retail projects (no net increase from a regional average).

The State CEQA Guidelines also provides guidance for assessing the significance of climate change impacts through a climate action plan or greenhouse gas reduction plan consistency analysis using a qualified climate action plan or greenhouse gas reduction plan. BAAQMD makes the direct connection between these two qualitative, performance-based options to a project's ability to demonstrate that it is doing its "fair share" in assisting the state in meeting the long-term GHG reduction target of achieving carbon neutrality by 2045, as mandated by AB 1279. Additionally, BAAQMD encourages lead agencies to quantify project-related construction GHG emissions, but given the temporary and variable nature of construction, BAAQMD has not developed a quantitative threshold of significance for construction-related GHG emissions.

Bay Area Clean Air Plan

BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate on April 19, 2017 (BAAQMD 2017). The 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the state's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a postcarbon year 2050 that encompasses the following:

- construct buildings that are energy efficient and powered by renewable energy;
- walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets;
- incubate and produce clean energy technologies; and
- live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.

A comprehensive multipollutant control strategy has been developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of particulate matter, toxic air contaminants, and GHG from a full range of emission sources. These control measures cover the following sectors: 1) stationary (industrial) sources; 2) transportation; 3) energy; 4) agriculture; 5) natural and working lands; 6) waste management; 7) water; and 8) super-GHG pollutants. Overall, the proposed control strategy is based on the following key priorities:

- reduce emissions of criteria air pollutants and toxic air contaminants from all key sources,
- reduce emissions of "super-GHGs" such as methane, black carbon, and fluorinated gases,
- decrease demand for fossil fuels (gasoline, diesel, and natural gas),
- increase efficiency of the energy and transportation systems
- reduce demand for vehicle travel and high-carbon goods and services,
- decarbonize the energy system,
- make the electricity supply carbon free, and
- electrify the transportation and building sectors.

Bay Area Commuter Benefits Program

Under Air District Regulation 14, Model Source Emissions Reduction Measures, Rule 1, Bay Area Commuter Benefits Program, employers with 50 or more full-time employees in the BAAQMD are required to register and offer commuter benefits to employees. In partnership with BAAQMD and MTC, the rule's purpose is to improve air quality, reduce GHG emissions, and decrease the Bay Area's traffic congestion by encouraging employees to use alternative commute modes, such as transit, vanpool, carpool, bicycling, and walking. The benefits program allows employees to choose from one of four commuter benefit options, including a pretax benefit, employer-provided subsidy, employer-provided transit, and alternative commute benefit.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of GHG emissions and climate change impacts in this Draft EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of GHG emissions and climate change impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.7.2 Environmental Setting

THE PHYSICAL SCIENTIFIC BASIS OF GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. The Sixth Assessment Report contains the Intergovernmental Panel on Climate Change's strongest warnings to date on the causes and impacts of climate change. Importantly, the report notes that, in terms of solutions, "We need transformational change operating on processes and behaviors at all levels: individual, communities, business, institutions, and governments. We must redefine our way of life and consumption" (IPCC 2021).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (IPCC 2013: 467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing CO_2 from the atmosphere.

UC Berkeley conducts annual GHG inventories to assess its progress in reducing emissions and meeting its climate change goals. UC Berkeley reports on ten emissions sources and analyzes emissions in three different categories (UC Berkeley 2024):

- Scope 1 - Direct Emissions: natural gas from the campus cogeneration (power and steam) plant, purchased natural gas, emergency generators, campus fleet, emissions from refrigerants.
- Scope 2 - Indirect Emissions: purchased electricity.
- Scope 3 - Indirect Emissions: business air travel, student commute, faculty/staff commute, solid waste, water.

Table 3.7-2 below summarizes GHG inventories for the UC Berkeley campus by scope for 1990, 2008, 2019, and 2022 emissions. UC Berkeley GHG Scope 1 and Scope 2 emissions are submitted and verified by the Climate Registry.

Table 3.7-2 UC Berkeley Greenhouse Gas Inventories

Emissions Source	$MTCO_2e$ 1990	$MTCO_2e$ 2008	$MTCO_2e$ 2019	$MTCO_2e$ 2022[a]
Scope 1				
Co-Gen Natural Gas	131,594	134,640	130,955	121,704
Natural Gas	8,148	12,093	11,779	12,048
Campus Fleet	1,968	1,554	1,755	1,627
Refrigerants	237	170	469	1,596
De Minimis	281	281	281	281
Scope 2				
Electricity	9,221	11,327	2,320	1,634
Scope 3				
Air Travel	19,980	21,959	24,566	16,136
Faculty & Staff Commute	23,142	17,625	12,329	3,689
Student Commute	4,100	3,230	3,245	1,880
Solid Waste	996	942	693	466
Water	783	839	304	268
Total Emissions	**200,451**	**204,660**	**188,705**	**161,331**

Note: a. This reflects the operation affected by the pandemic, especially with respect to air travel and student/staff/faculty commutes, although it is uncertain how these patterns will change permanently.

Source: UC Berkeley 2024.

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

The global average temperature is expected to increase by 3 to 7 degrees Fahrenheit by the end of the century, depending on future GHG emission scenarios (IPCC 2007). According to California's Fourth Climate Change Assessment, depending on future GHG emissions scenarios, average annual maximum daily temperatures in

California are projected to increase between 3.6 and 5.8 degrees Fahrenheit by 2050 and by 5.6 to 8.8 degrees Fahrenheit by 2100 (OPR et al. 2018).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and resulting rise in global average temperature. In recent years, California has been marked by extreme weather and its effects. Climate model projections for California demonstrate that impacts will vary throughout the state and show a tendency for the northern part of the state to become wetter while the southern portion of California to become drier (Pierce et al. 2018). According to California Natural Resources Agency's report, Safeguarding California Plan: 2018 Update (CNRA 2018), California experienced the driest four-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). Climate model projections included in California's Fourth Climate Change Assessment, demonstrate that seasonal summer dryness in California may be prolonged due to earlier spring soil drying and would last longer into the fall and winter rainy season. Increases in temperature are also predicted to result in changes to California's snowpack. Based on climate model projections, the mean snow water equivalent (a common measurement which indicates the amount of water contained within snowpack) in California is anticipated to decline to two-thirds of its historic average by 2050. If GHG emissions reductions do not occur, water from snowpack could fall to less than one-third of its historic average by 2100 (OPR et al. 2018).

Climate model projections demonstrate that California will experience variation in precipitation patterns as well. The Northern Sierra Nevada range experienced its wettest year on record in 2016 (CNRA 2018). With a shifting climate, California has been more susceptible to the adverse effects of atmospheric rivers, which are large scale, high-precipitation events that deposit above-average levels of rainfall to California's coasts within a short duration. These events have the capacity to overwhelm existing stormwater systems leading to localized flooding impacts.

Climate change is also projected to result in tertiary impacts on energy infrastructure throughout California. Changes in temperature, precipitation patterns, extreme weather events, and sea-level rise have the potential to affect and decrease the efficiency of thermal power plants and substations, decrease the capacity of transmission lines, disrupt electrical demand, and threaten energy infrastructure with the increased risk of flooding (CNRA 2018).

According to California's Fourth Climate Change Assessment, climate change will create impacts on the state's transportation network that will have 'ripple effects' including direct and indirect impacts on inter-dependent infrastructure networks as well as negative impacts on the economy. Without appropriate adaptations strategies for roadway materials (i.e., asphalt and pavement), researchers estimate that the median total cost to California for 2040-2070 will be between $1 billion and $1.25 billion (OPR et al. 2018). The California Department of Transportation owns and operates more than 51,000 miles along 265 highways, as well as three of the busiest passenger rail lines in the nation. Sea level rise, storm surge, and coastal erosion are imminent threats to highways, roads, bridge supports, airports, transit systems, and rail lines near sea level and seaports. Shifting precipitation patterns, increased temperatures, wildfires, and increased frequency in extreme weather events also threaten transportation systems across the state. Temperature extremes and increased precipitation can increase the risk of road and railroad track failure, decrease transportation safety, and increase maintenance costs (CNRA 2018). Modeling for flood events in California demonstrates that approximately 370 miles of highways are susceptible to flooding in a 100-year storm event by the year 2100 (OPR et al. 2018).

Water availability and changing temperatures affect the prevalence of pests, disease, and species, which will directly impact crop development, forest health, and livestock production. Other environmental concerns include decline in water quality, groundwater security, and soil health (CNRA 2018). Vulnerabilities of water resources also include risks to degradation of watersheds, alteration of ecosystems, and loss of habitat (OPR et al. 2018).

California's Fourth Climate Change Assessment also identifies the impacts climate change will have on public health and social systems. Average temperature increases in California are estimated to have impacts on human mortality, with 6,700 to 11,300 additional annual deaths in 2050, depending on higher or lower emissions scenarios (Ostro et al. 2011). Studies have also shown that impacts from climate change can also have indirect impacts on public health, such as increased vector-borne diseases, and stress and mental trauma due to extreme events, economic disruptions, and residential displacement (Gould and Dervin 2012; McMichael and Lindgren 2011; US Global Change Research Program 2016).

3.7.3 Impact Analysis and Mitigation Measures

METHODOLOGY

GHG emissions associated with the project would be generated during both project construction and operation. Methods used to estimate levels of construction- and operation-related GHGs are described below, while modeling outputs sheets are provided in Appendix C.

Construction-Related GHG Emissions

Construction-generated GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1. Emissions estimates are based on a combination of project-specific construction data (e.g., schedule, material volumes) provided by UC Berkeley and industry standard and accepted software tools, techniques, and emission factors.

Construction activities would begin as early as summer 2024 and conclude in summer 2028. Construction is assumed to progress as follows, based on information provided in Chapter 2, "Project Description." Site preparation, including demolition and grading activities, is assumed to begin in summer 2024 and take approximately 10 months to complete. Demolition would involve removal of approximately 200,000 square feet of existing buildings and asphalt areas resulting in 820 truck round trips to haul debris to the disposal location. Grading would involve removal of approximately 48,000 cubic yards of soil resulting in 5,000 truck round trips to haul debris to the disposal location. Demolition and soil haul trips are assumed to travel 40 and 13 miles one way, respectively.

Building construction is expected to start in July 2025 and would last approximately 36 months. Construction of the South Building would begin first, and construction of the North Building would begin as construction of the South Building enters its second year of construction. Construction phasing, equipment, material delivery trips, and worker commute trips were based on CalEEMod defaults for a 1.86-acre project site. For all phases, CalEEMod default offroad equipment (e.g., cranes, excavators, and dozers) was assumed. Model assumptions and inputs for these calculations can be found in Appendix C.

Operation-Related GHG Emissions

Long-term, operation-related emissions of criteria air pollutants and precursors were calculated using the CalEEMod Version 2022.1. Model details by emission source are described below. Model outputs can be found in Appendix C.

Mobile, Area, and Energy Sources

The operation of the project would generate emissions from mobile sources (vehicular traffic), and area sources, which include consumer products, architectural coatings, and landscaping equipment. Mobile sources were estimated based on daily VMT estimates derived from population-based estimates for Home-Based work trips for faculty, staff, and students from the 2021 LRDP EIR and the number of automobile trips resulting from the project estimated by Kittelson & Associates (Appendix I). Annual vehicle trips and VMT were estimated assuming 347 workdays per year, consistent with the 2021 LRDP EIR.

In accordance with the UC Berkeley Sustainability Plan, UC Berkeley procured 100 percent clean electricity by 2020 for eligible accounts (Table 3.7-1). In accordance with the UC Sustainable Practices Policy, all purchased electricity will be 100 percent clean starting in 2025. Further, no natural gas or propane is assumed to be required for future buildings as the project would focus on all-electric connections. Thus, electricity consumption associated with the new buildings is assumed to be carbon free.

Emergency Generators

Operations also are assumed to include up to four on-site diesel back-up generators (two per building), as well as emissions from chemical use at laboratories. Emergency generator emissions were estimated based on the expected annual testing frequency of 30 minutes twice per month, plus one-hour load bank testing once per year (13 hours total per year). In addition, based on guidance from BAAQMD, an additional 100 hours per year was added to each generator for non-testing and non-maintenance purposes. Thus, each generator is assumed to run for 113 hours per year. The specifics regarding the generators to be used (including model year, engine tier, and horsepower) are not known. Assumptions regarding generator emissions tier and horsepower are based on assumptions in the 2021 LRDP EIR.

Water, Wastewater, and Solid Waste

Emissions associated with water demand, wastewater generation, and solid waste generation were estimated using CalEEMod default values according to the proposed land uses.

THRESHOLDS OF SIGNIFICANCE

The issue of global climate change is inherently a cumulative issue because the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change is addressed only as a cumulative impact.

State CEQA Guidelines Section 15064 and relevant portions of Appendix G recommend that a lead agency consider a project's consistency with relevant, adopted plans and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. Under Appendix G of the State CEQA Guidelines, implementing a project would result in a cumulatively considerable contribution to climate change if it would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As noted above, as of July 2023, the UC Sustainable Practices Policy requires each campus to complete a decarbonization study, set interim targets for 2030, 2035, and 2040, and update and adopt its climate action plan for reducing GHG emissions from all scopes 90 percent by 2045 (from a 2019 baseline). Any residual emissions beyond 2045 would be eliminated through carbon removal.

Because the decarbonization study, interim targets, and updated Climate Action Plan are under development and campuswide emissions reductions have not been identified or fully evaluated, this EIR uses the goal of achieving net-zero project-emissions for all scopes as a significance threshold.

ISSUES NOT DISCUSSED FURTHER

All issues related to GHG emissions and climate changes are evaluated below.

IMPACT ANALYSIS

Impact 3.7-1: The project would generate GHG emissions, either indirectly or directly, that may have a significant impact on the environment.

Construction

Construction-related activities associated with the use of off-road equipment, material hauling trips, material delivery trips, and worker commute trips would generate GHG emissions. To estimate the GHG emissions associated with project construction, activities related to demolition, South Building construction, and North Building construction are each modeled separately using CalEEMod in accordance with the method summarized in the "Methodology" section above. Table 3.7-3 provides a summary of the estimated GHG emissions related to project construction. As shown in Table 3.7-3, the project would generate a total of 2,512 metric tons of carbon dioxide equivalent ($MTCO_2e$) during demolition of the existing structures, construction of the South Building, and construction of the North Building.

Table 3.7-3 Construction-Related GHG Emissions by Project Phase

Project Phase	$MTCO_2e$
Demolition	397
South Building	904
North Building	1,212
Total	**2,512**

Notes: Totals may not add due to rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: Modeled by Ascent in 2023.

As discussed in Section 3.7.1, "Regulatory Setting,' above, BAAQMD has not developed a quantitative threshold of significance for construction-related GHG emissions. The estimated GHG emissions resulting from project construction (as summarized in Table 3.7-3) are provided for informational purposes.

Operation

GHG emissions generation would occur during operation activities associated with mobile sources from building occupants and visitor-travel, landscaping activities, solid waste disposal at landfills, and water and wastewater treatment. Long-term emissions associated with project operation (beginning in 2028) are estimated also using CalEEMod in accordance with the method summarized in the "Methodology" section above. The estimated long-term GHG emissions are summarized in Table 3.7-4. As shown in Table 3.7-4, operational activities would result in a net decrease of 42 $MTCO_2e$ for Scope 1 and Scope 2 emissions and a net increase of 697 $MTCO_2e$ for Scope 3 emissions.

Campuswide, UC Berkeley Scope 1 emissions include the cogeneration plant, campus fleet, fuel use, and refrigerants. Scope 2 emissions include purchased electricity. Scope 3 emissions include building occupant and visitor trips, vendor trips, air travel, solid waste, water, and wastewater. Emissions from each of these scopes are discussed below.

Table 3.7-4 Operation-Related GHG Emissions by Sector

Emissions Sector	$MTCO_2e$ per Year	Scope
Existing Uses		
Energy	51	1 and 2
Proposed Uses		
Mobile	491	3
Area	7	1
Energy	0	2
Water	181	3
Waste	25	3
Refrigerants	2	1
Total Project	**706**	**-**
Total New Scopes 1 and 2	9	-
Total Existing Scopes 1 and 2	51	-
Net New Scopes 1 and 2	**-42**	**-**
Total New Scope 3	697	-
Total Existing Scope 3	0	-
Net New Scope 3	**697**	**-**

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: Modeled by Ascent in 2023.

<u>Scope 1 and Scope 2</u>

When in use, the existing University Hall received steam and power from the cogeneration plant. However, University Hall is currently unoccupied and not in operation. Therefore, there are no existing Scope 1 emissions from the University Hall. New scope 1 emissions associated with the project would include area sources associated with landscaping equipment fuel use and refrigerants associated with refrigerators, freezers, HVAC, and heat pumps in new uses. These emissions would be minimal and result in an estimated 9 $MTCO_2e$ per year at project buildout.

The two existing commercial buildings include businesses that are currently operational. These operational businesses are served by PG&E. Existing energy consumption and associated GHG emissions are estimated based on existing building square footage by land use type (e.g., dental care, copy center, restaurants). The existing Scopes 1 and 2 emissions are estimated to be 51 $MTCO_2e$ under existing conditions. There would be no new Scope 2 emissions with implementation of the project, as the only potential Scope 2 emission would be from purchased electricity. Per UC Sustainability Practices Policy, electricity procured at UC Berkeley is required to be from 100 percent clean by the year 2025. It is assumed that the project would be operational in 2028. Therefore, energy procured for the project is expected to be carbon neutral, and there would be no emissions associated with energy consumption.

As shown in Table 3.7-4, Scopes 1 and 2 emissions are estimated to be 51 $MTCO_2e$ under existing conditions, while Scopes 1 and 2 emissions are estimated to be 9 $MTCO_2e$ under project conditions. This results in a net negative of 42 $MTCO_2e$ with project implementation. Therefore, the project would achieve the UC goal of achieving net-zero emissions for Scope 1 and 2. In addition and as noted above, the project would eliminate on-site natural gas infrastructure in support of the UC Berkeley campuswide goal for decarbonization.

<u>Scope 3</u>

This analysis conservatively assumes no Scope 3 emissions are generated from the project site under existing conditions. New Scope 3 emissions associated with the project would include building occupant-and visitor-vehicle trips to and from the project site, as well as water consumption and waste generation associated with new demand associated with the facility. Scope 3 emissions would make up the vast majority of net new GHG emissions associated with the project and would result in an estimated annual 697 $MTCO_2e$ at project buildout.

To reduce Scope 3 emissions resulting from the project, the project will comply with the UC Sustainable Practices Policy, which requires that, at a minimum, Scope 3 emissions at all UC campus locations will align with the state's goals and policies to achieve climate neutrality by 2045 or sooner. As summarized in Table 3.7-1, the UC Sustainability Practices Policy identifies goals to reduce Scope 3 GHG emissions, including reducing single-occupant vehicle commute rate to no more 40 percent of campus employees and no more than 30 percent of all employees and students by 2050. UC Berkeley also has a goal to reduce the employee drive along rate to 36 percent by 2025. Additionally, pursuant to the UC Berkeley's Sustainability Plan, UC Berkeley will offset a portion of business air travel to reduce emissions and reduce emission by 10 percent by 2025. Currently, UC Berkeley has met its goal to reduce employee drive-alone rate to 36 percent, and has reduced emissions from business air travel by at least 10 percent relative to a 2019 baseline.

Summary

As discussed above, implementation of the project would result in a net negative of Scopes 1 and 2 emissions with project implementation. However, implementation of the project would result in a net increase of Scope 3 emissions. Therefore, the project would generate GHG emissions that would have adverse impacts on the environment. The impacts would be **potentially significant**. Because the UC Berkeley decarbonization study, interim targets, and updated Climate Action Plan are under development and campuswide emissions reductions for Scope 3 have not been identified or fully evaluated, UC Berkeley shall implement Mitigation Measure 3.7-1 to ensure net-zero project emissions. Voluntary offsets shall be purchased unless and until the mitigation measure may be replaced consistent with CEQA with sufficient and technically feasible, direct emissions reductions that demonstrate achievement of the campuswide reduction target of 90 percent below 2019 levels by 2045, which covers all scopes.

As stated above, the UC Sustainable Practices Policy allows for the purchase of voluntary offsets to meet obligations under CEQA, LEED certification requirements, or other purposes; however, they will not count towards campuswide interim or 2045 GHG total reduction targets under the most recent 2023 UC Sustainable Practices Policy.

Mitigation Measures

Mitigation Measure 3.7-1: Project-Specific Carbon Offsets

In addition to compliance offsets required by cap and trade, UC Berkeley shall purchase GHG carbon offsets from a voluntary GHG carbon offset provider with an established protocol that requires projects generating GHG carbon offsets to demonstrate that the reduction of GHG emissions are real, permanent, quantifiable, verifiable, enforceable, and additional (per the definition in California Health and Safety Code Sections 38562(d)(1) and (2)). UC Berkeley shall purchase GHG carbon offsets from UC developed voluntary carbon offset projects that are real, permanent, quantifiable, peer verifiable, enforceable, and additional. Definitions for these terms follow.

a. Real: Estimated GHG reductions should not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions should be conservative to avoid overstating a project's effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as "leakage"). To ensure that GHG reductions are real, CARB requires the reduction be a direct reduction within a confined project boundary.

b. Additional: GHG reductions must be additional to any that would have occurred in the absence of the Climate Action Reserve, or of a market for GHG reductions generally. "Business as usual" reductions (i.e., those that would occur in the absence of a GHG reduction market) should not be eligible for registration.

c. Permanent: To function as offsets to GHG emissions, GHG reductions must effectively be "permanent." This means, in general, that any net reversal in GHG reductions used to offset emissions must be fully accounted for and compensated through the achievement of additional reductions.

d. Quantifiable: The ability to accurately measure and calculate GHG reductions or GHG removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emission sources, GHG sinks, or GHG reservoirs included within the offset project boundary, while accounting for uncertainty and activity-shifting leakage and market-shifting leakage.

e. Verified: GHG reductions must result from activities that have been verified. Verification requires third-party (or peer review if UC-developed voluntary carbon offset projects) of monitoring data for a project to ensure the data are complete and accurate.

f. Enforceable: The emission reductions from offset must be backed by a legal instrument or contract that defines exclusive ownership and can be enforced within the legal system in the country in which the offset project occurs or through other compulsory means. Please note that for this mitigation measure, only credits originating within the United States are allowed.

Significance after Mitigation

Mitigation Measure 3.7-1 identifies actions that, in addition to the elimination of Scope 1 and 2 emissions, removal of fossil-fuel burning infrastructure, and implementation of Scope 3 reduction measures as described above, will offset GHG emissions from the project and support achievement of UC Berkeley's carbon neutrality goals. Implementation of Mitigation Measure 3.7-1 would ensure that UC Berkeley would offset remaining project GHG emissions to "net zero." Because the project would result in net zero emissions, the project, with mitigation, would not generate GHG emissions, either indirectly or directly, that may have a significant effect on the environment. In addition, the project would not conflict with UC Berkeley's carbon neutrality goals or the state's SB 32 or SB 1279 reduction goals. Consequently, this impact is **less than significant** with mitigation.

Impact 3.7-2: The project would not conflict with an applicable GHG emissions reduction plan, policy, or regulation.

Applicable plans adopted for the purpose of reducing GHG emissions include the 2022 Scoping Plan and Plan Bay Area 2050.

As described above in Section 3.7.1, "Regulatory Setting," the state's adopted GHG reduction plan/strategy, the 2022 Scoping Plan, is the applicable GHG reduction plan used to evaluate GHG emissions associated with the project. The

2022 Scoping Plan lays out the framework for achieving carbon neutrality and an 85 percent reduction in 1990 emission goal by 2045. The 2022 Scoping Plan identifies the reductions needed by each GHG emission section (e.g., transportation, industry, and electricity generation) to achieve these goals. The project would achieve the key actions and the overall objective of the 2022 Scoping Plan. The project would support phasing out of fossil fuel combustion for building heating and energy, as the project would be fully electric and would procure carbon free energy. The project would include several sustainable project features, including the provision of solar photo voltaic panels on the roof area of both buildings and native and/or adaptive and drought-resistant landscaping. The project would be a LEED-certified Gold project, which would be designed and constructed with a focus on energy saving, water efficiency, and reduced carbon emissions.

The project would be consistent with the UC Sustainable Practices Policy and goal to prioritize direct, on-campus emissions reductions, and would result in a net reduction in Scope 1 and 2 emissions. While the project would result in an increase in Scope 3 emissions, pursuant to the UC Sustainable Practices Policy and associated GHG emission reduction commitments, UC Berkley will reduce campuswide total emissions for all scopes to 90 percent below 2019 levels, in alignment with state targets and the 2022 Scoping Plan.[4] As discussed above, UC Berkeley will purchase voluntary carbon credits to ensure the project will result in net-zero emissions per Mitigation Measure 3.7-1. Therefore, implementation of the project would not conflict with the 2022 Scoping Plan.

As part of the implementing framework for Plan Bay Area 2050, local governments have identified Priority Development Areas to focus growth. The project is located within a Priority Development Area and a Transit Priority Area in Downtown Berkeley (Figure 2-2). Implementation of the project would be consistent with the overall goals of Plan Bay Area 2050 in concentrating job growth in locations where there is existing infrastructure. Based on these reasons, the project would not conflict with applicable state and regional plans adopted for the purpose of reducing GHG emissions. The impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

[4] Any residual emissions beyond the 90 percent reduction would be eliminated through carbon removal.

This page intentionally left blank.

3.8 HAZARDS AND HAZARDOUS MATERIALS

This section evaluates potential health, safety, and environmental impacts related to hazards and hazardous materials that could result from implementation of the project. It describes existing potential hazards and safety concerns within the project site and surroundings and the nature of potential impacts that could occur as a result of construction and operation of the project.

This section also addresses impacts related to the use of research materials that do not meet the standard criteria of hazardous materials because the use of such materials at UC Berkeley, including chemicals, radioactive material, biohazardous material and waste, transgenic material, laboratory animals, and nonionizing radiation, is a matter of concern to the surrounding community.

In response to the notice of preparation (NOP), UC Berkeley received comments requesting information related to the types of laboratory activities that would occur during project operation that could pose a hazard to the public and the environment; the types of hazardous materials that would be used and stored at the project site; the public health and environmental effects that could result from accidental releases of hazardous materials; protocols to ensure public safety; and the entities responsible for oversight and enforcement of safety protocols. All of the aforementioned concerns are addressed, where appropriate, as part of the environmental analysis presented in this section. The NOP and comments received during the public scoping period are provided in Appendix A.

3.8.1 Regulatory Setting

INTERNATIONAL

International Air Transport Association

The International Air Transport Association (IATA) is the trade association for the world’s airlines, representing approximately 290 airlines, or 82 percent of total air traffic. The IATA supports aviation activities and helps formulate industry policy on critical aviation issues. The IATA’s Dangerous Good Regulations (DGR) is an industry organization's guidance document that provides information for the international transportation of dangerous goods by air. Dangerous goods include infectious agents, chemicals, and research animals. The DGR contains guidance on the classification, packing, marking, labeling, and documenting of shipments of dangerous goods to ensure they are safe to travel.

FEDERAL

US Environmental Protection Agency

The US Environmental Protection Agency (EPA) is the primary federal agency that regulates hazardous materials and waste. In general, EPA works to develop and enforce regulations that implement environmental laws enacted by Congress. The agency is responsible for researching and setting national standards for a variety of environmental programs, delegating the responsibility for issuing permits, and monitoring and enforcing compliance by states and Native American tribes. EPA programs promote handling hazardous waste safely, cleaning up contaminated land, and reducing waste volumes through strategies such as recycling. California falls under the jurisdiction of EPA Region 9. Under the authority of the Resource Conservation and Recovery Act (RCRA) (described below) and in cooperation with state and tribal partners, the EPA Region 9 Waste Management and Superfund Divisions manage programs for site environmental assessment and cleanup, hazardous and solid waste management, and underground storage tanks.

US Department of Transportation

The US Department of Transportation (DOT) has the regulatory responsibility for the safe transportation of hazardous materials between states and internationally. DOT regulations govern all means of transportation except for packages shipped by mail, which are covered by US Postal Service regulations. RCRA (described below) imposes additional standards for the transport of hazardous waste.

Federal Aviation Administration

The Federal Aviation Administration (FAA) issues regulations covering hazardous materials that are part of the required aircraft equipment. FAA also regulates the transportation of radioactive materials on passenger-carrying aircraft when the material is intended for use in, or incident to, research or medical diagnosis of treatment. FAA enforces the transportation or shipment of hazardous materials by air, and all regulations applicable to air carriers and shippers by air issued under the Federal Aviation Act (49 U.S.C. Section 40101 et seq.).

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) requires specific training for hazardous materials handlers, provides information to employees who may be exposed to hazardous materials, and acquires material safety data sheets from materials manufacturers. The material safety data sheets describe the risks and proper handling and procedures related to specific hazardous materials. Employee training must include response and remediation procedures for hazardous materials releases and exposures.

Resource Conservation and Recovery Act

Federal hazardous waste laws are generally promulgated under RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984. These laws provide for the "cradle to grave" regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed of. The California Department of Toxic Substances Control (DTSC) is responsible for implementing the RCRA program, as well as California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law. Under the Unified Program, the California Environmental Protection Agency (CalEPA) has in turn delegated enforcement authority to the City of Berkeley Toxics Management Division for state law regulating hazardous waste producers or generators in the City of Berkeley.

Emergency Planning Community Right-to-Know Act

The Emergency Planning Community Right-to-Know Act (EPCRA), also known as Title III of the Superfund Amendments and Reauthorization Act (SARA Title III), was enacted in October 1986. This law requires state and local governments to plan for chemical emergencies. Reported information is made publicly available so that interested parties can become informed about potentially dangerous chemicals in their community. EPCRA Sections 301–312 are administered by EPA's Office of Emergency Management. EPA's Office of Information Analysis and Access implements the EPCRA Section 313 program. In California, SARA Title III is implemented through the California Accidental Release Prevention (CalARP) program.

Hazardous Materials Transportation Act

DOT regulates hazardous materials transportation under Title 49 of the Code of Federal Regulations (CFR). State agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are FAA, California Highway Patrol (CHP), and California Department of Transportation (Caltrans). The California State Fire Marshal's Office has oversight authority for hazardous materials liquid pipelines. The California Public Utilities Commission has oversight authority for natural gas pipelines in California. These agencies also govern permitting for hazardous materials transportation.

Business Plan Act

The federal government and the State of California require all businesses that handle more than a specified amount of hazardous materials or extremely hazardous materials—termed a reporting quantity—to submit a hazardous materials business plan (HMBP) to the local Certified Unified Program Agency. An HMBP must be submitted by businesses that handle a hazardous material or a mixture containing a hazardous material in quantities equal to or greater than:

- 500 pounds of a solid;
- 55 gallons of a liquid;
- 200 cubic feet of a compressed gas at standard temperature and pressure;
- federal threshold planning quantity for extremely hazardous substances; or
- for radioactive materials, quantities for which an emergency plan is required per Part 30, 40, or 70 of the CFR, Title 10, Chapter 1.

The business plan must identify the type and quantity of hazardous materials, identify risks of using these materials, and include a site map, spill prevention measures, emergency response measures, employee training materials, and emergency contacts.

Code of Federal Regulations—Lead and Asbestos Standards

CFR Title 29, Section 1926.62 sets standards for occupational health and environmental controls for lead exposure in construction, regardless of the lead content of paints and other materials. The standards include requirements addressing exposure assessment, methods of compliance, respiratory protection, protective clothing and equipment, hygiene facilities and practices, medical surveillance, medical removal protection, employee information and training, signs, recordkeeping, and observation and monitoring.

CFR Title 40, Section 61, Subpart M sets forth emissions standards for asbestos related to demolition and renovation activities and for waste disposal related to such activities.

National Institute of Health Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules

The purpose of the National Institute of Health (NIH) Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules is to specify the biosafety practices and containment principles for constructing and handling recombinant nucleic acid molecules; synthetic nucleic acid molecules, including those that are chemically or otherwise modified but can base pair with naturally occurring nucleic acid molecules; and cells, organisms, and viruses containing such molecules. All UC Berkeley researchers working with recombinant or synthetic nucleic acid molecules must follow the NIH guidelines. Compliance is mandatory, and it is the responsibility of each investigator to make sure that their laboratory is in compliance.

Animal Welfare Act

The Animal Welfare Act of 1966 (and its subsequent amendments) is the primary federal law that governs the use of animals in research, testing, and teaching in the United States. This act is implemented and enforced by the US Department of Agriculture (USDA). It provides the basis for the regulatory authority given to USDA to ensure the welfare of animal species that are covered by the act and used in regulated activities. Compliance with the regulations is ensured by the Institutional Animal Care Use and Committees (IACUC). The primary functions of IACUC are reviewing and inspecting all aspects of an institution's animal care and use program, including all animal facilities and animal care records; reviewing animal use protocols; reviewing and investigating complaints about animal use; and making recommendations to the institutional official. This is to ensure compliance with all regulations and policies and allows for interaction between the IACUC and institutional staff members. At UC Berkeley, the Animal Care and Use Committee serves as the IACUC.

US Public Health Service Policy on the Humane Care and Use of Laboratory Animals

The US Public Health Service Policy on the Humane Care and Use of Laboratory Animals requires institutions to establish and maintain proper measures to ensure the appropriate care and use of all animals involved in research, research training, and biological testing conducted or supported by the US Public Health Service.

STATE

California Environmental Protection Agency

CalEPA is one of the primary state agencies that regulates hazardous materials. CalEPA is authorized by EPA to enforce and implement certain federal hazardous materials laws and regulations. DTSC, a department of CalEPA, protects the state and residents from exposure to hazardous waste, primarily under the authority of the RCRA and the California Health and Safety Code. DTSC requirements include the need for written programs and response plans, such as hazardous materials management plans. DTSC programs require that aftermath cleanups of improper hazardous waste management be conducted; samples taken from sites be evaluated; and regulations regarding the use, storage, and disposal of hazardous materials be enforced. It also encourages pollution prevention.

California Division of Occupational Safety and Health

Like OSHA at the federal level, the California Division of Occupational Safety and Health (better known as Cal/OSHA) is the state agency responsible for ensuring workplace safety. Cal/OSHA assumes primary responsibility for the adoption and enforcement of standards regarding workplace safety and safety practices. If a work site is contaminated, a site safety plan must be crafted and implemented to protect the safety of workers. Site safety plans establish policies, practices, and procedures to prevent the exposure of workers and members of the public to hazardous materials originating from the contaminated site or building.

California Office of Emergency Services

The California Office of Emergency Services (Cal OES) was established as part of the Governor's Office on January 1, 2009. It was created pursuant to Assembly Bill 38, which merged the duties, powers, purposes, and responsibilities of the former Governor's Emergency Management Agency with those of the Governor's Office of Homeland Security. Cal OES is responsible for the coordination of overall state agency response to major disasters in support of local government. The agency is responsible for ensuring the state's readiness to respond to and recover from all hazards—natural and human-caused hazards, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

California Department of Transportation and California Highway Patrol

Caltrans and the CHP are the two state agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. Caltrans manages more than 50,000 miles of California's highways and freeways, provides intercity rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans is also the first responder for hazardous material spills and releases that occur on highways, freeways, and intercity rail lines.

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations designed to prevent leakage and spills of materials in transit and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP, which conducts regular inspections of licensed transporters to ensure regulatory compliance.

The State of California regulates the transportation of hazardous waste originating or passing through the state. The CHP licenses common carriers, pursuant to Section 32000 of the California Vehicle Code. This section requires the licensing of every motor (common) carrier that transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, that carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of the business in the delivery of hazardous materials.

California Department of Public Health—Radiologic Health Branch

The Radiologic Health Branch (RHB) is within the Radiation Safety and Environmental Management Division of the California Department of Public Health. RHB enforces the laws and regulations addressing ionizing radiation, including radioactive material, to protect the public, radiation workers, and the environment. It is responsible for providing public health functions associated with administering a radiation control program. This includes licensing of radioactive materials, registration of X-ray-producing machines, certification of medical and industrial X-ray and radioactive material users, inspection of facilities using radiation, investigation of radiation incidents, and surveillance of radioactive contamination in the environment.

CCR Title 8 Section 5191—Occupational Exposure to Hazardous Chemicals in Laboratories

California Code of Regulations (CCR) Title 8, Section 5191, Occupational Exposure to Hazardous Chemicals in Laboratories, requires that all laboratories have a written chemical hygiene plan as a fundamental chemical safety plan for the laboratory. Chemical hygiene plans are written programs that set forth procedures, equipment, personal protective equipment, and work practices capable of protecting employees from the health hazards presented by hazardous chemicals used in laboratories.

CCR Title 8 Section 5085—Nonionizing Radiation

CCR Title 8, Section 5085, Nonionizing Radiation, establishes maximum permissible exposure values for frequencies between 3 megahertz and 300 gigahertz. Compliance with CCR Title 8 is required for all employers in the State of California. Enforcement of these regulations falls to Cal/OSHA, which inspects UC Berkeley facilities to determine compliance with Title 8.

CCR Title 17, Division 1, Chapter 5, Subchapter 4—Radiation

CCR Title 17, Division 1, Chapter 5, Subchapter 4 regulates the use of radioactive material and includes requirements for the registration of sources of radiation and the licensing of radioactive material. This subchapter also contains standards that protect against radiation, including the need for inspections, investigations, the maintaining of proper records and notifications, and the proper use of X-ray machines and radioactive materials. Standards for the transportation of radioactive materials and the responsibilities of local health departments are also covered.

California Building Code and Fire Code

The State of California provides a minimum standard for building design through the California Building Code (CBC), which is found in 24 CCR Part 2. The CBC is updated every 3 years. It is generally adopted on a jurisdiction-by-jurisdiction basis and may be subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local city and county building officials for compliance with the typical fire safety requirements of the CBC, including the installation of sprinklers in all high-rise buildings, the establishment of fire resistance standards for fire doors and building materials, and the clearance of debris and vegetation near occupied structures in wildfire hazard areas.

The California Fire Code (CFC) incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official fire code for the State of California and all political subdivisions, located in 24 CCR Part 9. The CFC is revised and published approximately every 3 years by the California Building Standards Commission.

California Health and Safety Code

California Health and Safety Code Chapter 6.95 and 19 CCR Section 2729 set out the minimum requirements for business emergency plans and chemical inventory reporting. These regulations require businesses to provide emergency response plans and procedures; training program information; and a hazardous material chemical inventory disclosing hazardous materials stored, used, or handled on-site. A business that uses hazardous materials or a mixture containing hazardous materials must establish and implement a management plan if the hazardous material is handled in certain quantities.

Senate Bill 1889, California Accidental Release Prevention Program

On January 31, 1994, EPA promulgated a final rule under provisions of the Clean Air Act for the prevention of accidental releases of hazardous substances. The rule established a list of chemicals and threshold quantities that identify facilities subject to subsequent accident prevention regulations. In October 1996, California passed Senate Bill 1889, now incorporated as Health and Safety Code Sections 25531–25534.3. This bill established the merging of the federal and state programs for the prevention of accidental releases of regulated toxic and flammable substances. Cal

OES has adopted regulations to eliminate the need for two separate and distinct risk management programs. The incorporation of the federal and state requirements has been designated as the CalARP.

Worker Safety Standards for Asbestos and Lead

CCR Title 8, Sections 1529 and 1532.1 set forth worker safety standards for asbestos and lead exposure for employees conducting demolition, construction, and renovation work, including painting and decorating.

CFR Title 40, Part 61, Subpart M and CFR Title 29, Section 1926.62 regulate asbestos and lead exposure in all construction work, including demolition of structures where asbestos and lead are present; removal or encapsulation of materials containing asbestos and lead; construction, alteration, repair, maintenance, or renovation of structures that contain asbestos and lead; installation of products containing asbestos and lead; asbestos and lead spill and emergency cleanup; and transportation, disposal, storage, and containment of asbestos and lead on the site at which construction activities are performed.

Public Resources Code Section 21151.4

Section 21151.4 of the Public Resources Code states:

> An environmental impact report shall not be certified or a negative declaration shall not be approved for any project involving the construction or alteration of a facility within one-fourth of a mile of a school that might reasonably be anticipated to emit hazardous air emissions, or that would handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code, that may pose a health or safety hazard to persons who would attend or would be employed at the school, unless both of the following occur:
>
> 1. The lead agency preparing the environmental impact report or negative declaration has consulted with the school district having jurisdiction regarding the potential impact of the project on the school.
> 2. The school district has been given written notification of the project not less than 30 days prior to the proposed certification of the environmental impact report or approval of the negative declaration.

National Pollutant Discharge Elimination System

The State Water Resources Control Board (SWRCB) adopted the statewide National Pollutant Discharge Elimination System (NPDES) Construction General Permit in August 1999. The state requires that projects disturbing more than 1 acre of land during construction file a Notice of Intent with the applicable regional water quality control board (RWQCB) to be covered under this permit. The San Francisco Bay RWQCB has the authority to require proper management of hazardous materials at the project site during construction activities.

Construction activities subject to the Construction General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must identify best management practices (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control. See also Section 3.9, "Hydrology and Water Quality," for additional information.

UNIVERSITY OF CALIFORNIA

UC Berkeley 2021 Long Range Development Plan

The UC Berkeley 2021 Long Range Development Plan (LRDP) contains the following objectives related to hazards and emergency response that are applicable to the project (UC Berkeley 2021a):

- Continue to plan for emergency access and response to address major events (e.g. earthquake, fire, life safety) that impact campus facilities.
- Collaborate with the City of Berkeley and other community stakeholders in responding to emergencies and natural disasters. Plan new capital projects to support the life-safety requirements of the appropriate public safety providers.

UC Berkeley Safety and Environmental Programs

The UC Berkeley Office of Environment, Health & Safety (EH&S) has primary responsibility for creating and maintaining safety programs to provide safe conditions for the environment, the UC Berkeley community, and the public in compliance with related standards and regulations. The following mandatory compliance measures and programs implemented by UC Berkeley are applicable to the project:

- Safe Handling and Storage of Hazardous Materials: UC Berkeley maintains HMBPs for various locations on campus per federal, state, and the City of Berkeley's Toxics Management Division requirements. UC Berkeley also maintains Hazardous Materials Storage Permits and Hazardous Waste Generator Permits. The EH&S booklets "Safe Storage of Hazardous Chemicals" and "Guidelines for Explosive and Potentially Explosive Chemicals: Safe Storage and Handling," the fact sheet "Flammable & Combustible Liquids Storage In Campus Laboratories," and other publications available on the EH&S website provide details on safe hazardous materials storage and handling practices. Furthermore, material safety data sheets guidance should be followed if the work involves hazardous materials.
- Transportation of Hazardous Waste and Materials: Safe transportation procedures are outlined in the EH&S fact sheet "Transporting Chemicals Safely on Campus." Specific procedures for safe chemical transportation include the use of secondary containment and other acceptable practices. All materials regulated in transportation must be shipped by an individual trained and certified by UC Berkeley to meet the requirements of the DOT Hazardous Materials Requirements and the IATA DGR on identifying, marking, labeling, documenting, and offering the material to a registered transport carrier.
- Disposal of Hazardous Waste: Strict environmental laws govern the disposal of all hazardous wastes. Unwanted hazardous materials may not be discharged into the environment or disposed of in the municipal trash. EH&S picks up hazardous materials for proper disposal after users properly package and label unwanted items. Guidelines for proper packaging and labeling of unwanted hazardous materials are described in the EH&S's detailed guidance on use of the EH&S Hazardous Waste Program.
- Hazard Communication Program: The EH&S Hazard Communication program seeks to help UC Berkeley departments fulfill the requirements of Cal/OSHA Section 5194, also known as the "Employee Right-to-Know" law. The law requires employers to provide information on physical and health hazards of the materials employees use or encounter as part of their work. There are three basic components of UC Berkeley's Hazard Communication standard:
  - adequately labeling all hazardous substances in the workplace,
  - providing information such as safety data sheets for each hazardous chemical in the department, and
  - training employees on the chemical hazards of their workplace.

  Each laboratory using hazardous materials needs to have a completed "Chemical Hygiene Plan" signed by employees in order to meet Hazard Communication requirements. Shops and other production or service areas using hazardous materials need to have a completed "Hazard Communication" form signed by each employee using the facility to assist in meeting the training requirements.
- Chemical Inventory Program: Federal, state, and local regulations require UC Berkeley to inventory the types and quantities of its hazardous materials. The Chemical Inventory Program, coordinated by EH&S, tracks and reports the storage and use of hazardous materials. The inventory assists emergency responders, provides UC Berkeley users with specific hazard and storage information, aids in the sharing of chemicals, and reminds users to dispose of sensitive chemicals before they become unsafe or expensive to dispose of.

- **Safe Handling, Storage, and Disposal of Radioactive Material**: UC Berkeley's Radiation Safety Manual describes the policies and procedures intended to ensure radiation safety on the UC Berkeley campus. The manual also sets out requirements for obtaining radioactive material licenses per federal and state regulations, including documents and training with guidance in the safe storage and labeling of radioactive materials. UC Berkeley's Radiation Safety Information System is a database with information on radiation use authorizations. This inventory is used to verify compliance with UC Berkeley radioactive materials license requirements.
- **Safe Handling, Storage, and Disposal of Biohazardous Material**: Biological hazardous materials include infectious or toxic microorganisms (including viral vectors), recombinant DNA, potentially infectious human substances, and research animals and their tissues in cases from which transmission of infectious agents or toxins is reasonably anticipated. UC Berkeley's Biosafety Manual outlines administrative steps necessary to obtain and maintain approval for the use of biological materials in laboratories, as well as a reference for good work practices and safe handling of such materials. UC Berkeley's Exposure Control Plan describes how to eliminate or minimize the exposure of all UC Berkeley personnel to human and nonhuman primate blood or blood products and other potentially infectious materials that might contain bloodborne pathogens in accordance with Cal/OSHA's Bloodborne Pathogen Standard.
- **Management of Nonionizing Radiation**: Nonionizing radiation (NIR) sources are present on the UC Berkeley campus either in research applications or in ancillary equipment. It is the policy of UC Berkeley to provide a workplace safe from the known hazards of NIR by ensuring compliance with federal and state safety regulations. The NIR safety program is upgraded as new regulations and standards become available and are detailed in the UC Berkeley Non-Ionizing Radiation Safety Manual.
- **Toxic Gas Program**: UC Berkeley has a program that specifies minimum requirements for the safe storage, use, and handling of toxic gas on campus. EH&S coordinates this program by performing evaluations of toxic gas usage and offering technical advice on the requirements of the program.
- **Transgenic Material**: Research involving transgenic animals or plants performed at UC Berkley adhere to the requirements of the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules. Furthermore, UC Berkeley's Recombinant DNA Emergency Spill and Incident Reporting Procedures in a Biosafety Level 1 or 2 laboratory details the procedure that needs to be followed in case of recombinant DNA spills.
- **Workplace Safety Program**: It is the policy of UC Berkeley to maintain a safe and healthy work environment for each employee (including student and contract employees) and to comply with all applicable occupational health and safety regulations. In August 2017, UC Berkeley established a central safety program called the Workplace Safety Program, which is based on the UC Berkeley Injury and Illness Prevention Program policy. The Workplace Safety Program details the health and safety practices to be followed to prevent work-related injuries and illnesses, along with procedures and resources for implementing guidance for the Injury and Illness Prevention Program.
- **Emergency Operations Plan**: UC Berkeley's Emergency Operations Plan (EOP) provides strategic direction to emergency response activities by outlining common tasks that units will carry out during emergency operations. UC Berkeley's EOP incorporates the components of the Standardized Emergency Management System, as described by California Government Code Section 8607(a), and the Incident Command System and National Incident Management System, as described in the US Department of Homeland Security document entitled, "National Incident Management System."

UC Berkeley Waste Discharge Permit Requirements

As part of the Waste Discharge Permit, the East Bay Municipal Utility District (EBMUD) requires UC Berkeley to maintain the following plans and documents:

- **Wastewater Toxics Management Plan**: This plan incorporates all pollution prevention requirements in the Waste Discharge Permit. The plan addresses chemicals listed in 40 CFR Part 122. EPA has listed these chemicals and elements as priority pollutants because their bioaccumulative and toxic nature have been demonstrated to be harmful to human health and wildlife.

- **Drain Disposal Restrictions for Chemicals**: The Waste Discharge Permit, in addition to federal and state laws and regulations, prohibits drain disposal of hazardous wastes and limits the allowable wastewater concentration for drain disposal of specific substances. Prohibitions on chemical disposal into drains are detailed in UC Berkeley's Drain Disposal Restrictions for Chemicals.
- **UC Berkeley Slug Control Plan**: The purpose of UC Berkeley's Slug Control Plan is to eliminate or minimize the potential for an accidental discharge of pollutants that could reach the sanitary sewer and cause a violation of UC Berkeley's EBMUD wastewater discharge permit conditions. The slug control plan describes procedures for identifying potential spill sources, implementing preventive measures, conducting spill response, and notifying the appropriate authorities in the event of an accidental slug discharge to the sanitary sewer. In addition, the plan presents BMPs for preventing slug discharges to sanitary sewers. The plan applies to all UC Berkeley operations where there is a potential for slug discharges, including research and teaching laboratories, facilities operations, food preparations, construction sites, and hazardous waste accumulation areas. A slug discharge is any discharge of a nonroutine, episodic nature, including:
  - a spill or noncustomary discharge of potentially hazardous material,
  - a hazardous waste discharge,
  - a discharge other than clean rainwater reaching the campus storm drain system,
  - a discharge that exceeds EBMUD Wastewater Control Ordinance limitations, and
  - a discharge not allowed by UC Berkeley's Drain Disposal Restrictions for Chemicals.

UC Berkeley Environmental Enforcement Code

The Environmental Enforcement Code was adopted in 2018 for the purpose of enforcing federal, state, and local environmental rules and regulations on all properties owned, operated, or controlled by the UC California Regents and administered by UC Berkeley. The policy requires UC Berkeley to conduct investigations of environmental releases and, where appropriate, obtain technical or monitoring reports from any person suspected of causing an environmental release. The code is enforced by the UC Police Department, which can issue citations, detain violators, or refer environmental criminal cases to the County District Attorney's Office, as appropriate.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing UC Berkeley buildings, infrastructure, grounds, and maintenance issues. Key sections of the Campus Design Standards relevant to hazards and hazardous materials include an entire section that dictates the management of hazardous waste and disposal, such as providing personnel trained in hazardous waste handling, along with proper containers, labels, storage areas, inspections, and disposal. The standards also include requirements related to dewatering activities.

UC Berkeley Continuing Best Practices

UC Berkeley implements continuing best practices (CBPs) to ensure that environmental impacts from development and ongoing UC Berkeley operations would be reduced or avoided to the greatest extent feasible. CBPs are implemented by UC Berkeley as part of development efforts and ongoing operations. Relevant project-specific CBPs would be implemented as part of the project, as described in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are listed where relevant in the impact analyses presented in this section, to illustrate how they would help to reduce or avoid environmental impacts from the project. A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

REGIONAL

San Francisco Bay Regional Water Quality Control Board

The Porter-Cologne Water Quality Control Act established SWRCB and divided the state into nine regional basins, each under the jurisdiction of an RWQCB. The project site is within the jurisdiction of the San Francisco Bay RWQCB. The San Francisco Bay RWQCB has the authority to require groundwater investigations and remedial action if the quality of groundwater or surface waters of the state are threatened. See also Section 3.9, "Hydrology and Water Quality," for additional information.

Bay Area Air Quality Management District Rules and Regulations

The Bay Area Air Quality Management District (BAAQMD) has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products. The latter are typically the responsibility of the California Air Resources Board and CalEPA, respectively. The BAAQMD is responsible for preparing attainment plans for nonattainment criteria pollutants, controlling stationary air pollutant sources, and issuing permits for activities. The following rules and regulations may be applicable to the project:

- District Regulation 11, Rule 1 was adopted to control the emissions of lead into the atmosphere.
- District Regulation 11, Rule 2 was adopted to control emissions of asbestos into the atmosphere during demolition, renovation, milling, and manufacturing and establish appropriate waste disposal procedures.
- District Regulation 6, Rules 1 and 6 set standards and requirements for controlling and mitigating fugitive dust emissions at dust-generating facilities.

East Bay Municipal Utility District Wastewater Discharge Permit

EBMUD requires UC Berkeley to submit a Wastewater Discharge Permit application every 5 years that describes waste use, water-using and wastewater generation process, and wastewater origins, characteristics, and volumes. The permit issued by EBMUD allows UC Berkeley to discharge approximately 1,000,000 gallons of wastewater daily to the community sewer system. The wastewater is treated at the EBMUD wastewater treatment plant in Oakland.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of hazards impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of hazards impacts. However, because UC Berkeley collaborates with the City of Berkeley in responding to emergencies and natural disasters, the following local plans and policies are provided for informational purposes.

City of Berkeley General Plan

The City of Berkeley General Plan Disaster Preparedness and Safety Element and Environmental Management Element contain the following policies and actions related to hazards and hazardous materials, which are applicable to the project (City of Berkeley 2002):

- Policy S-22: Fire Fighting Infrastructure: Reduce fire hazard risks in existing developed areas.
- Policy EM-7: Reduced Wastes: Continue to reduce solid and hazardous wastes.
  - Action C: Encourage the Lawrence Berkeley Laboratory and the University of California to minimize to the greatest extent feasible the storage of radioactive and other toxic wastes in Berkeley.

- **Action D**: Encourage reduction in the use of toxic materials.
- **Action G**: Support programs and incentives to reduce the manufacture and use of materials which are non-recyclable or hazardous to people and the environment.

- **Policy EM-13: Hazardous Materials Disclosure:** Continue to require the disclosure of hazardous materials usage and encourage businesses using such materials to prepare and implement a plan to reduce the use of hazardous materials and the generation of hazardous wastes.
- **Policy EM-14: Hazardous Material Regulation:** Control and regulate the use, storage and transportation of toxic, explosive, and other hazardous and extremely hazardous material to prevent unauthorized and accidental discharges.
  - **Action A**: Regularly inspect business using, storing, transporting, or generating hazardous materials or wastes to ensure compliance with federal, state, and local regulations.
  - **Action B**: Require facility operators to write and implement contingency plans in preparation for emergency situations and accidental releases. Additionally, require facilities to train their employees on how to activate the contingency plans.
- **Policy EM-15: Environmental Investigation**: When reviewing applications for new development in areas historically used for industrial uses, require environmental investigation as necessary to ensure that soils, groundwater, and buildings affected by hazardous material releases from prior land uses would not have the potential to affect the environment or the health and safety of future property owners, users, or construction workers.

City of Berkeley Emergency Operations Plan

The City of Berkeley's 2016 EOP establishes the authorities, structures, and responsibilities of the policy level, departments, and the City's emergency operations center (EOC) (City of Berkeley 2016). It describes the City's coordination with county, regional, state, and federal entities, as well as external Berkeley partners.

City of Berkeley Municipal Code

Chapter 15.12, Hazardous Materials and Waste Management, of the Berkeley Municipal Code (BMC) governs the use, handling, storage, and disposal of hazardous materials and wastes in the City of Berkeley, including exposure to such substances as a result of fire, spills, industrial accidents, or other releases or emissions. Facilities are required to:

- report all hazardous materials and hazardous wastes if at any time during a year the combined total exceeds 500 pounds or more of all solid hazardous materials and wastes; 55 gallons or more of all liquid hazardous materials and wastes; or 200 cubic feet or more at standard temperature and pressure of all gaseous hazardous materials; materials in consumer packaging located in a retail area for direct sale to the public need not be included (BMC Section 15.12.050[A]);
- report any quantity of hazardous waste (BMC Section 15.12.050[C][4]);
- report any quantity of a material that is or contains a material subject to regulation by the Nuclear Regulatory Commission in Title 10 of the CFR, including any byproduct, licensed, source, or special material (BMC Section 15.12.050[C][2]);
- report all manufactured nanoparticles, defined as a particle with one axis less than 100 nanometers in length (BMC Section 15.12.050[C][7]); and
- report any quantity of an etiologic agent, as defined in subsection D of Section 15.08.060 of BMC Title 15.

Chapter 12.84, Transportation of Radioactive Materials, of the BMC supplements federal and state regulations with procedures to protect against and deal with potential accidents that may occur during the transportation and shipment of radioactive materials. The City requires a certificate of emergency transport, issued by the fire chief or a designated representative, for the shipping or transportation of radioactive materials into, through, or over the City of Berkeley by any mode of transportation. The certificate specifies conditions deemed reasonably necessary to protect the health, safety, and welfare of the community.

3.8.2 Environmental Setting

Hazards include conditions that could potentially affect health and safety. Examples include exposure to hazardous materials, such as chemicals or hazardous waste, or to physically hazardous situations, such as those that may occur in areas of high wildfire risk or in proximity to airports. Hazardous materials are defined, and potential hazards that may occur within the project site and vicinity are summarized below.

DEFINITIONS

For purposes of this section, the term "hazardous materials" refers to both hazardous substances and hazardous wastes. A "hazardous material" is defined in the CFR as "a substance or material that…is capable of posing an unreasonable risk to health, safety, and property when transported in commerce" (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> "Hazardous material" means 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 waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

"Hazardous wastes" are defined in California Health and Safety Code Section 25141(b) as wastes that:

> because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [or] [p]ose a substantial present or potential hazard to human health or the environment…when improperly treated, stored, transported, disposed of, or otherwise managed.

A hazardous chemical is any chemical whose presence or use poses a physical or health hazard. The federal OSHA Laboratory Standard defines it as a chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles, that it may cause acute or chronic health effects to exposed employees. The term "health hazard" includes chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins (affecting the liver), nephrotoxins (affecting kidneys), neurotoxins (affecting brain and nervous system), agents that affect the hematopoietic (blood) system, and agents that damage lungs, skin, eyes, or mucous membranes.

A recognized environmental condition (REC) is the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment.

A controlled recognized environmental condition (CREC) is an REC affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, activity and use limitations or other property use limitations).

A historical recognized environmental condition (HREC) is a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and that meets unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations).

PROJECT SITE CONDITIONS

The following discussion provides a summary of the findings presented in the Phase I ESA prepared for the project site (Partner Engineering and Science 2023). The project site comprises several parcels: University Hall, a surface parking lot immediately west of University Hall, and UC-owned commercial buildings located at 2136–2140 University Avenue and 2154–2160 University Avenue. The commercial buildings are currently occupied by UC Berkeley and tenants (a dental office, two restaurants, a copying and printing service shop, an electrical engineering company, and a construction company).

Based on site records, the project site was previously developed with residences between 1890 (and potentially earlier) and 1911. The existing retail buildings along University Avenue were added in the 1920s, with additional residences, stores, offices, a gasoline service station, and an automobile sales and service facility developed on the southern portion of the site beginning in the 1920s and into the 1950s. The existing University Hall was constructed in 1958. One additional office building was constructed at the project site, beginning in 1958. It was removed at some point in the 1980s. The site has remained in its current condition since the early 1990s.

No CRECs or HRECs were identified as part of the Phase I ESA; however, one REC was identified in connection with the project site. From 1946 to 1954, a former commercial building in the northern portion of the project site was occupied by a dry-cleaning business. Dry-cleaning operations typically use chlorinated solvents, particularly tetrachloroethylene (PCE). Even when properly stored and disposed of, chlorinated solvents can be released from these facilities in small, frequent releases through floor drains, cracked concrete, and sewer systems. Chlorinated solvents are highly mobile chemicals that can easily accumulate in the soil and migrate to the groundwater beneath a facility. When the dry-cleaning business occupied the project site, the use of hazardous materials was not subject to common regulatory oversight, and no records of dry-cleaning operations were found as part of the site investigation. Therefore, it is possible that undocumented releases of chlorinated solvents, such as PCE, occurred at the project site. The historical dry-cleaning facility is considered a REC because of the potential for dry-cleaning operations to have taken place on the project site. Soil gas and the potential for vapor intrusion is likely to be an issue of concern at the project site.

As noted above, the southeastern portion of the project site was developed as an automotive sales and service facility from as early as 1939 until sometime before 1958. It is possible that hazardous materials (e.g., solvents) were used at the facility. However, the facility was not listed in regulatory databases, and it is likely that residual contamination would have been excavated during construction of the existing University Hall and below-grade parking lot. Therefore, the automotive sales and service facility is not considered a REC.

The Phase I ESA also indicates that radioactive materials were previously used or stored in University Hall. In addition, asbestos-containing materials (ACMs) and lead-based paint (LBP) may be found in the buildings because of the age of structures on the project site. Readily visible suspect ACMs were observed in good condition. A few areas of the building materials, including ceiling tiles, were noted during the assessment to be broken or chipped and have signs of water damage.

SURROUNDING PROPERTIES

As observed during the site reconnaissance conducted for the Phase I ESA, the properties adjoining the project site consist of:

- University Avenue, followed by a mixed-use building, Acheson Building, Walnut Street, and a commercial building under construction on the north;
- the intersection of University Avenue and Oxford Street followed by UC Berkeley on the northeast;
- Oxford Street followed by UC Berkeley and Crescent Lawn on the east;
- Addison Street followed by a mixed-use building, a parking lot, a commercial building, and the Berkeley Art Museum and Pacific Film Archive on the south; and
- a coffee shop, a coworking facility, a restaurant, and a multifamily residential building on the west.

The Berkeley School, an early childhood center located at 2030 Francisco Street, is approximately 0.25 mile northwest of the project site; it is the only K–12 school within 0.25 mile of the site.

ENVIRONMENTAL RECORDS REVIEW

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state, and local agencies are consolidated in the "Cortese List" pursuant to Government Code Section 65962.5. The following data resources were reviewed to identify any facilities or sites meeting the Cortese List requirements within or in proximity to the project site:

- list of hazardous waste and substances sites from the DTSC EnviroStor database (DTSC 2023);
- list of leaking underground storage tank sites from the SWRCB GeoTracker database (SWRCB 2023);
- list of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit (CalEPA 2016a);
- list of active Cease and Desist Orders and Cleanup and Abatement Orders from SWRCB (CalEPA 2016b); and
- list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the California Health and Safety Code, identified by DTSC (CalEPA 2023).

The lists and databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The status of a site changes as identification, monitoring, and cleanup of hazardous materials progress. Typically, a site is closed after it has been demonstrated that existing site uses combined with the levels of identified contamination on-site present no significant risk to human health or the environment.

Based on a review of the sources cited above, the project site is not included on a list of facilities or sites identified as meeting the "Cortese List" requirements. The following leaking underground storage tank cleanup sites are within 500 feet of the project site: (1) UC Berkeley site garage, located at 1952 Oxford Street; (2) CA DHS laboratory facility, located at 2151 Berkeley Way; and (3) Toltec property, located at 2148 Center Street. However, the cleanup for these sites was completed, and the cases were closed between 1994 and 2004 (SWRCB 2023).

HAZARDOUS MATERIALS MANAGEMENT AT UC BERKELEY

The EH&S Policy Committee, as delegated by UC Berkeley's chancellor, sets environmental, health, and safety policies. In accordance with these policies, students, faculty, staff, administrators, visitors, and guests are responsible for complying with, implementing, communicating, and/or ensuring adherence to environmental, health, and safety regulations, principles, and practices (UC Berkeley 2021b).

EH&S develops and oversees programs to be implemented by UC Berkeley to meet legal requirements and environmental, health, and safety policies adopted by UC Berkeley. EH&S also provides technical expertise, consulting assistance, permit management, and other services to ensure compliance with legal requirements. Furthermore, EH&S is responsible for picking up and processing unwanted hazardous material and waste and coordinating the proper disposal of waste and redistribution of reusable material. It also communicates with regulatory agencies in the environmental, health, and safety arena on behalf of UC Berkeley. Responsibilities may include informational and corrective action meetings, negotiations, UC Berkeley input on pending legislation, and written communications. Additionally, EH&S provides direct services to UC Berkeley, including:

- filing HMBPs and ensuring review by and distribution to other potentially affected agencies, including the Berkeley Fire Department (BFD);
- investigating accidents on the campus;
- providing information about asbestos, performing asbestos inspections and evaluations, and auditing the work of asbestos abatement contractors;

- assisting the Committee for Laboratory and Environmental Biosafety (CLEB) to issue Biohazard Use Authorizations (BUAs) responding to concerns and allegations about improper practices involving biohazardous materials, inspecting BUA holders annually, and reviewing departmental manuals as requested for handling biohazardous materials;
- assisting in the completion of environmental permits pertaining to air and water quality protection;
- inspecting campus buildings to identify and eliminate fire hazards, such as improper storage of flammable material, electrical fire hazards, and blocked hallways or exits;
- testing fume hoods approximately twice a year and biohoods annually to ensure that adequate airflow is maintained;
- upon request, aiding in hazardous material spill cleanup, preparing written reports about reportable releases, and notifying appropriate agencies about reportable spills;
- providing prompt, safe, cost-effective, and legal waste management services to UC Berkeley chemical, radioactive, and medical waste generators, including compliance assistance, waste pickup, hazardous chemical material reuse, transportation, disposal, and tracking;
- as delegated by the California State Fire Marshal, reviewing and approving/denying plans for new construction and renovation and conducting construction inspections to ensure compliance with applicable Fire Code requirements; and
- offering training in the environmental, health, and safety area. These training areas include asbestos awareness, biological safety cabinet use, chemical inventory software, fire and life safety, fume hood use, hazard communication, hazardous waste disposal and minimization, injury and illness prevention, and laboratory safety.

EH&S manages most of the hazardous waste at the Hazardous Materials Facility in the Campus Park on Frank Schlesinger Way, just east of the Hellman Tennis Complex. Hazardous waste is collected, labeled, packaged, and transported to various off-campus treatment facilities, depending on the waste type. For locations outside the Campus Park, EH&S coordinates waste pickup directly through its licensed hazardous waste vendors (UC Berkeley 2021b).

BIOHAZARDOUS MATERIALS

The CLEB is charged with formulating UC Berkeley policies to ensure the safe conduct of research involving biohazardous agents and materials. These policies, developed in accordance with guidelines of the NIH and the Centers for Disease Control, relate to facility design; containment equipment; safe laboratory practice; and training of students, staff, and faculty working in the facility. All faculty whose research involves working with biohazardous agents in animals and/or the laboratory must hold a valid BUA. BUA requirements apply generally to laboratory research involving organisms with the potential to cause human disease, and to experiments with recombinant DNA, covered by the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules. Before this authorization is issued, the animal and/or laboratory facilities and laboratory practices are reviewed by EH&S and CLEB (UC Berkeley 2021b).

Furthermore, EH&S implements a biosafety program that consists of three specific programs that are designed to ensure that all work involving biohazardous materials is conducted in compliance with federal and state regulations:

- BUA Program: EH&S provides application forms and copies of the regulations to persons who plan to conduct laboratory work with biological materials (including recombinant DNA). EH&S also assists researchers in obtaining BUAs and meeting applicable OSHA requirements.
- OSHA Bloodborne Pathogens Standards: EH&S provides compliance assistance, technical information, training, and materials to implement the Cal/OSHA bloodborne pathogen standard at UC Berkeley.

- **Biological Safety Cabinet Program:** EH&S assists users at UC Berkeley in complying with National Sanitation Foundation Standards and Cal/OSHA ventilation requirements for biological safety cabinets and assists users in the proper use of biological safety cabinets and laminar-flow clean benches (UC Berkeley 2021b).

The project would not include any laboratories classified as Biosafety Level (BSL) -3 or BSL-4, which are laboratories used to study infectious agents or toxins that may be transmitted through the air and cause potentially lethal infections and laboratories used to study microbes that can cause serious or lethal human or animal disease and are readily transmitted, respectively.

EMERGENCY OPERATIONS MANAGEMENT

The UC Berkeley Office of Emergency Management (OEM) works collaboratively to plan and prepare UC Berkeley for emergencies, educate about preparedness, and coordinate response and recovery. OEM administers a comprehensive emergency management and continuity program for UC Berkeley to respond to, recover from, and reduce the effects of risks associated with emergencies of all types and sizes. OEM is a unit of the UC Berkeley Administrative Division and implements UC Berkeley's EOP (UC Berkeley 2021b).

OEM includes the UC Berkeley EOC. UC Berkeley's EOC is responsible for the coordination of information and resources to manage and support an emergency. The UC Berkeley EOC is activated for a variety of emergencies that may affect UC Berkeley, such as an earthquake, wildfire, or large-scale power outage. OEM focuses on building partnerships across UC Berkeley. Depending on the emergency type and size, OEM collaborates with UC Berkeley departments and local authorities. Some of OEM's internal partners include University Health Services, Disability Access & Compliance, Facilities Services, EH&S, Fire Prevention (Campus Fire Marshal), Communications & Public Affairs, and Student Affairs. OEM also partners with the following external agencies: City of Berkeley Office of Emergency Services, Lawrence Berkeley National Laboratory Emergency Management, and Alameda County Office of Emergency Services (UC Berkeley 2021b).

Furthermore, the UC Berkeley EH&S Designated Urgent Response Team (DURT), staffed by health and safety professionals and hazardous materials specialists and technicians, responds to most minor hazardous materials incidents reported at UC Berkeley. Currently, the DURT can generally respond to an incident within 15 minutes. In infrequent cases when outside assistance is required, such as a life-threatening hazardous materials situation, the DURT or other UC Berkeley staff or students may request emergency assistance from BFD by dialing 911. The Alameda County Fire Department assists BFD when necessary. EH&S can also obtain support from its list of emergency response contractors (UC Berkeley 2021b).

Additionally, the BFD Office of Emergency Services coordinates a suite of programs to build disaster resilience in the larger Berkeley community. These programs support personal preparedness, community connections, and government efforts that help Berkeley respond to and recover from earthquakes, fires, or other disasters. The Office of Emergency Services also reviews, revises, and implements the City's EOP (UC Berkeley 2021b).

University Avenue, Oxford Street, and Addison Street, which border the project site to the north, east, and south, are designated by the City of Berkeley as emergency access and evacuation roads (City of Berkeley 2011).

3.8.3 Impact Analysis and Mitigation Measures

METHODOLOGY

This impact evaluation is based primarily on the Phase I ESA prepared by Partner Engineering and Science (2023) for the project site (provided in Appendix G of this Draft EIR). It is also based on a review of available literature published by federal and state agencies, including DTSC, SWRCB, and CalEPA; the UC Berkeley 2021 LRDP (UC Berkeley 2021a); and the 2021 LRDP Public Draft EIR (UC Berkeley 2021b).

THRESHOLDS OF SIGNIFICANCE

An impact related to hazards and hazardous materials would be significant if implementation of the project would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would result in a safety hazard or excessive noise for people residing or working in the project area;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

ISSUES NOT DISCUSSED FURTHER

Airport Hazards

The project site is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The nearest airport is the Oakland International Airport, located approximately 9 miles south of the project site. Therefore, implementing the project would not result in a safety hazard or excessive noise with respect to airport operations for people residing or working in the vicinity of the project site. This issue is not discussed further.

Wildland Fire

The project site is located within a developed and urbanized area in Downtown Berkeley. The project site and surrounding area are not located within an area that is categorized as a fire hazard severity zone by the California Department of Forestry (CAL FIRE 2008). Because the project site is located in an urbanized area not within the Urban-Wildland Interface, the potential risk of wildland fire to occur on or adjacent to the project site is considered extremely low (CAL FIRE 2008). Therefore, implementation of the project would not expose people or structures to significant risks of loss, injury or death involving a wildland fire. Impacts related to wildfire risk are fully discussed in Section 3.16, "Wildfire." This issue is not discussed further in this section.

IMPACT ANALYSIS

Impact 3.8-1: The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Construction

Construction activities would involve the use of materials such as diesel fuel, oil, lubricants, grease, transmission fluids, paints, sealants, and cement. There is potential for these materials to spill or to create hazardous conditions. However, the materials would not be used in such quantities or stored in such a manner as to pose a significant safety hazard. To prevent hazardous conditions, existing federal, state, and local laws and regulations, as described under Section 3.8.1, "Regulatory Setting," would be enforced at the construction site. Cal/OSHA has regulations concerning the use of hazardous materials, including requirements for safety training, exposure warnings, availability of safety equipment, and preparation of emergency action/prevention plans. Furthermore, construction-related hazardous conditions would cease after the construction period, which would last approximately 10 months for site preparation and 30–36 months for building construction.

Because the project would involve more than 1 acre of ground disturbance, construction activities would be required to comply with the Construction General Permit, as described in Section 3.8.1, "Regulatory Setting," and discussed further in Section 3.9, "Hydrology and Water Quality." The Construction General Permit requires the development of a SWPPP that identifies proposed BMPs and includes a site-specific construction site monitoring and reporting plan. Although a major focus of the SWPPP is managing stormwater on the construction site, it also must address proper use and storage of hazardous materials, spill prevention and containment, and cleanup and reporting of any hazardous materials releases if they do occur.

Construction activities would result in the demolition of on-site structures. As stated in Section 3.8.2, "Environmental Setting," radioactive materials were previously used or stored in University Hall. UC Berkeley would be required to complete a final clearance radiation survey, which would need to be approved by the Radiologic Health Branch of the California Department of Public Health before demolition of the building.

In addition, because of the age of the on-site buildings, which were constructed in approximately the 1920s and in 1958, construction workers may potentially encounter hazardous building materials, including ACMs and LBP, during demolition activities. Readily visible suspect ACMs were identified during the site reconnaissance for the Phase I ESA prepared for the project site. The Phase I ESA recommended that an ACM survey be conducted before demolition of on-site buildings to confirm the presence or absence of ACMs. Similarly, the collection of material samples would be required to determine whether LBP is present. Any work that would potentially expose workers or the public to ACMs or LBP would be regulated by CCR Title 8, Section 1529 and Section 1532.1; CFR Title 40, Part 61, Subpart M and Title 29, Section 1926.62; and BAAQMD's District Regulation 11, Rules 1 and 2. ACM and LBP abatement must be performed and monitored by contractors with appropriate certification from the California Department of Health Services.

To ensure compliance with laws and regulations governing hazards and hazardous materials, UC Berkeley would implement the following CBPs as part of the project:

- **CBP HAZ-1**: UC Berkeley will continue to implement the same (or equivalent) health and safety plans, programs, practices, and procedures related to the use, storage, disposal, or transportation of hazardous materials and wastes (including chemical, radioactive, and biohazardous materials and waste) during the LRDP planning horizon. These include, but are not limited to:
  - Requirements for safe transportation of hazardous materials
  - UC Berkeley Office of Environment, Health & Safety training programs and oversight
  - The Hazard Communication Program
  - Publication and promulgation of the Water Protection Policy, the drain disposal guidelines, the Wastewater Toxics Management Plan, and the Slug Control Plan
  - Requirements that laboratories have Chemical Hygiene Plans and a chemical inventory database
  - The Aboveground Storage Tank Spill Prevention Control and Countermeasure Plan and monitoring of underground storage tanks
  - Implementation of the hazardous waste disposal program and policies
  - The Green Labs Program
  - The Biosafety Program
  - The Medical Waste Management Program
  - The Laser Safety Program

- The Radiation Safety Program
- The Drain Disposal Restrictions

These programs may be subject to modification as regulations or UC Berkeley policies are developed or if the programs become obsolete through replacement by other programs that incorporate similar or more effective health and safety protection measures. However, any modifications must incorporate similar or more effective health and safety protection measures.

- **CBP HAZ-2**: UC Berkeley will continue to implement the same (or equivalent) programs related to laboratory animal use during the LRDP planning horizon, including, but not necessarily limited to, compliance with United States Public Health Service Regulations, the National Research Council Guide for the Care and Use of Laboratory Animals, and Animal Welfare Act regulations. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar or more effective health and safety protection measures.
- **CBP HAZ-3**: UC Berkeley will continue to implement the same (or equivalent) programs related to transgenic materials use during the LRDP planning horizon, including, but not necessarily limited to, compliance with the National Institute of Health Guidelines for Research Involving Recombinant DNA Molecules, United States Department of Agriculture requirements for open-field-based research involving transgenic plants, and requiring registration with the UC Berkeley Office of Environment, Health & Safety for all research involving transgenic plants. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar or more effective health and safety protection measures.
- **CBP HAZ-4**: UC Berkeley will continue to perform hazardous materials surveys prior to capital projects in existing UC Berkeley buildings. UC Berkeley will continue to comply with federal, State, and local regulations governing the abatement and handling of hazardous building materials and each project will address this requirement in all construction.

Following these CBPs would reduce potential impacts related to hazards and hazardous materials from project-related construction and demolition activities.

Operation

The laboratories associated with the project would be designated as BSL-1 and BSL-2; the project would not include any laboratories classified as BSL-3 or BSL-4, During operation of the project, certain materials and chemicals would be used and stored at the project site as a result of on-site laboratory activities. This discussion evaluates the potential risks associated with using or generating such hazardous materials at the project site.

Nonradioactive Hazardous Materials

The chemicals that would be used in the proposed laboratory facilities would be similar to those currently used in similar facilities at UC Berkeley. The level and the nature of the hazards posed by these chemicals and wastes vary widely and are unique to the individual materials, although they often can be grouped by chemical types. Substances can possess one or more common hazard characteristics, such as corrosivity (acids and bases), flammability (solvents such as acetone), toxicity (cyanides, mercuric chloride), and reactivity. Some nonradioactive chemicals have the potential for causing cancer or acute and chronic illnesses, and some substances may present little hazard.

Because most handling of hazardous materials at UC Berkeley takes place indoors, potential pathways for exposure to nonradioactive hazardous chemicals under routine conditions include direct contact or injection during research or through accidental spills or inhalation.

Workers and visitors might be exposed to hazardous chemicals through inhalation, skin absorption (contact), ingestion, and injection (cuts). To minimize risk, the project would comply with all applicable requirements of CCR Title 8, Section 5191 and UC Berkeley standards per CBP HAZ-1 (listed above). Fume hoods and other engineering controls would be required to meet Cal/OSHA requirements, and fume hood ventilation rates would continue to be checked regularly by EH&S. To prevent exposure through skin contact, UC Berkeley policies and procedures require that protective clothing, such as laboratory coats, gloves, and safety glasses, be worn while handling hazardous materials and waste. Proper washing after handling chemicals is also required. Continued implementation of these UC Berkeley policies and procedures and continued compliance with existing laws and regulations would minimize the risk to workers and visitors from exposure to nonradioactive hazardous chemicals.

The potential for exposure of the public, including nearby homes and schools, to hazardous materials used at UC Berkeley under routine conditions would be limited because most hazardous materials use and storage on campus takes place indoors. The most probable potential pathway for public exposure would be air emissions from accidental releases on the project site or during transportation and routine operation. Exposure to air emissions from routine operation is analyzed in Chapter 3.2, "Air Quality." The potential for public exposure under upset or accident conditions, both from handling of hazardous materials on campus and during transportation, is addressed in the discussion for Impact 3.8-2, below.

Hazardous chemical use under routine conditions could result in impacts on the environment if hazardous materials are improperly disposed of (for example, in the sanitary sewer). Disposal of chemicals into the sanitary sewer is regulated by federal, state, and local laws and regulations. UC Berkeley is subject to requirements specified in various Special Wastewater Discharge Permits issued by EBMUD. Federal and California clean water laws permit laboratories to dispose of, in small quantities, some chemicals that do not pose a hazard to human health or the environment, as described in UC Berkeley's Drain Disposal Restrictions for Chemicals. Continued compliance with federal, state, and local regulations governing the storage of hazardous materials; City of Berkeley Toxic Management Division and EH&S inspections of UC Berkeley laboratories and support facilities using hazardous materials; and implementation of Spill Prevention, Control, and Countermeasure plans would minimize the risk associated with the increased use of hazardous materials at the project site and prevent significant hazards associated with their use.

Radioactive Hazardous Materials

Operation of the proposed laboratory facilities would involve the use of radioactive hazardous materials. The use of radioactive materials and radiation-producing machines would be governed by the regulations and requirements issued by the California Department of Public Health's RHB. UC Berkeley would be required to implement the requirements expressed in its Broad-Scope Radioactive Materials License issued by the RHB. As noted in CBP HAZ-1 (listed above), radioactive material and waste would also be handled in accordance with UC Berkeley's Radiation Safety Manual, and project operation would comply with the requirements of the UC Berkeley Radiation Safety Program. This program is intended to protect personnel from unnecessary radiation exposure; prevent contamination of natural resources; and meet the state and federal regulations governing the possession, use, and disposal of radioisotopes and radiation-producing sources. Project operation would also comply with UC Berkeley's radioactive waste minimization program. UC Berkeley has established a three-part program intended to minimize the production of radioactive waste that includes reduction in use, strict segregation of radioactive wastes from other wastes, and storage and disposal of decay waste program. Given that adequate safety controls, plans, and procedures are in place to limit exposure to radiation from radioisotopes, radiation-producing machines, and radioactive waste, the project has low potential to expose occupants or the public to significant health or safety risks.

Biohazardous Materials

Operation of the proposed laboratory facilities also would involve the use of biohazardous materials. The types of biological agents used during project operation would be similar to those currently used at UC Berkeley; however, new research could create a need for new and different biological agents. An increase in the use of biohazardous materials could potentially affect workers and the public through air (inhalation of aerosols), water (release to the sewer), waste disposal, and accidents. However, the project would comply with UC Berkeley standards per CBP HAZ-1 and HAZ-2 (listed above), the BUA Program, the Exposure Control Plan, and the Biological Safety Cabinet Program, which would minimize the potential for adverse effects on the public. Although some of these programs are designed primarily for worker safety, they also control releases to the environment and exposure to the public at large by preventing releases to the air and the sanitary sewer.

Most biohazardous materials pose no significant hazard to the public because of their limited viability in the environment; however, others could pose a potential hazard if accidentally released or improperly handled.

Particulate-borne air emissions of bacteria and viruses would be controlled by high-efficiency particulate air filtration at a very high degree of efficiency, minimizing the potential for public exposure. With continued compliance with regulatory requirements and current UC Berkeley guidelines for controlling employee exposure to biohazardous materials, the project would not increase the potential impacts related to use of biohazardous materials on employee health, the environment, and the public.

Biohazardous Waste

Operation of the proposed laboratory facilities could involve the use of biohazardous materials and animal care activities with potential to produce biohazardous waste. Most laboratory tissues, fluids, and cultures are potentially infectious waste. Potentially infected animal care wastes can include animal excreta; bedding and uneaten food; cage-washing solutions; animal carcasses and tissues; disposable protective worker clothing; and sharp objects, such as needles, scalpels, and broken glass. At UC Berkeley, nonmedical sharps waste and animal carcasses not contaminated with infectious agents known to cause human illness are also handled as medical waste to protect custodial workers and to reduce public concern.

As a large-quantity generator of medical wastes, UC Berkeley is obligated to comply with the California Medical Waste Management Act. Additionally, UC Berkeley implements a Medical Waste Management Program. Existing UC Berkeley health and safety practices and compliance with state regulations would minimize the potential for adverse health effects related to biohazardous waste. The project would comply with these practices.

Transgenic Material

Operation of the proposed laboratory facilities would involve research using transgenic organisms. Except for transgenic bacteria that could be infectious, transgenic microorganisms do not pose a threat to public health or the environment. If not properly segregated from the surrounding environment, transgenic plants could genetically contaminate nontransgenic plants in the surrounding area or adversely affect biodiversity through crosspollination.

As noted in CBP HAZ-3, all research involving transgenic organisms on the UC Berkeley campus is required to comply with the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules. The guidelines specify containment practices for plants, microorganisms, and animals, depending on the potential hazard posed by the organism. The potential for exposure of workers, visitors, or the public to infectious transgenic organisms is minimized by compliance with the Centers for Disease Control and NIH guidelines for research involving biohazardous materials. All research involving transgenic plants must register with EH&S, and a permit from USDA is required for open-field-based research involving transgenic plants. Most research involving transgenic plants on campus is conducted at the lowest plant biosafety level, BLP-1, with organisms that pose no risk. Furthermore, UC Berkeley's Recombinant DNA Emergency Spill and Incident Reporting Procedures in a Biosafety Level 1 or 2 laboratory details the procedure that needs to be followed in case of recombinant DNA spills.

Controls, such as the use of segregated and screened greenhouses, limit the potential for impacts on plants in the surrounding area. The proposed laboratory facilities that involve research using transgenic organisms would comply with existing programs and controls that minimize potential impacts of research involving transgenic organisms.

Laboratory Animals

Operation of the proposed laboratory facilities could involve research using laboratory animals, which could pose potential hazards to workers, building occupants, and the neighboring community if contacts between humans and animals are not effectively managed. In accordance with US Public Health Service regulations, the IACUC oversees all aspects of animal care in UC Berkeley facilities. Before any research involving live vertebrate animals can be initiated, a protocol for the activity must be prepared by the principal investigator and approved by the IACUC. Laboratory animal care practices must comply with the Animal Welfare Act, the National Research Council Guide for the Care and Use of Laboratory Animals, and the US Public Health Service Policy on the Humane Care and Use of Laboratory Animals (see CBP HAZ-2, listed above). UC Berkeley has achieved a high level of compliance with regulatory guidelines concerning the care and treatment of laboratory animals. The proposed laboratory facilities would be designed and constructed to prevent the release of laboratory animals to the environment and would be operated in compliance with existing programs and controls.

Nonionizing Radiation

Operation of the proposed laboratory facilities could involve research using nonionizing radiation, such as lasers. The hazards posed by nonionizing radiation devices used in research on the UC Berkeley campus are health and safety hazards to those who work in laboratories where such devices are used and, in the case of Class 4 lasers, laboratory fire hazards. As discussed in Section 3.8.1, "Regulatory Setting," UC Berkeley complies with the requirements of CCR Title 8, Section 5085 and implements an NIR safety program as described in the Non-Ionizing Radiation Manual. Compliance with CCR Title 8 is required for all employers in the State of California. Cal/OSHA, the agency responsible for enforcing these regulations, inspects campus facilities to determine compliance with Title 8. Implementation of the project would be required to comply with these policies and procedures to limit the potential for nonionizing radiation hazards at the project site.

Hazardous Materials Transportation

As discussed above, the project would involve the use of hazardous materials and generation of hazardous waste. Consequently, the project would require the transport of hazardous materials to and from the project site. Transportation of chemicals on public roads, including the delivery of chemicals to UC Berkeley, must comply with DOT requirements, including the requirements of the Hazardous Materials Transportation Act, as described above in Section 3.8.1. Additionally, the transportation of hazardous materials, such as research samples, by air is required to abide by the requirements of the Hazardous Materials Transportation Act and the guidelines of the IATA. All hazardous waste generated at the project site would be picked up by EH&S or a licensed hazardous waste contractor under UC Berkeley oversight. The generator of hazardous waste would be required to properly package and label all unwanted hazardous materials prior to pickup. Safe transportation procedures are outlined in the EH&S fact sheet "Transporting Chemicals Safely on Campus." All materials regulated in transportation must be shipped by an individual trained and certified by UC Berkeley to meet the requirements of the DOT Hazardous Materials Transportation Act requirements and the IATA DGR on identifying, marking, labeling, documenting, and offering the material to a registered transport carrier. Project operation would be required to comply with these safety regulations, guidelines, and policies, which would ensure that substantial risks associated with hazardous materials transportation would not occur.

Summary

Compliance with existing laws, regulations, policies, and procedures would be sufficient to ensure that the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-2: The project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

As discussed for Impact 3.8-1, project construction and operation would involve the routine transport, use, and disposal of hazardous materials. Compliance with existing regulations, described in that discussion and in the discussion below, would minimize the potential for upset and/or accident conditions to occur and the potential for off-site consequences to occur.

The project would conform to the adopted CFC, which establishes standards for the storage of hazardous materials. Under current practice at UC Berkeley, hazardous waste held on the UC Berkeley campus must comply with all applicable regulations, including use of suitable containers that are closed except when adding or removing waste and secondary containment.

The DOT Office of Hazardous Materials Safety prescribes strict regulations for the transportation of hazardous materials, as described in 49 CFR, which also regulates transportation by air. Transportation along state roadways within or near UC Berkeley is subject to all hazardous materials transportation regulations established by the CHP pursuant to the California Vehicle Code. Any air transport would be governed by the regulations of the IATA. UC

Berkeley policy requires that all hazardous materials shipped on public roads or by air be packaged in compliance with DOT and IATA requirements. Compliance with these regulations minimizes the potential for accidental release of hazardous materials being transported to or from UC Berkeley.

UC Berkeley HMBPs describe procedures to follow in the event of an accidental release of hazardous materials. The EH&S DURT can respond to most incidents at UC Berkeley and, if necessary, can arrange for appropriate assistance from the BFD, the Alameda County Fire Department, and outside emergency response contractors. CalARP governs the storage of hazardous materials and addresses facilities that contain specified hazardous materials or "regulated substances" that, if involved in an accidental release, could result in adverse off-site consequences. The BFD, which provides fire protection to the UC Berkeley campus, has hazardous materials response capabilities, enabling it to respond effectively to fires in facilities that store hazardous materials.

Detailed chemical inventories maintained by UC Berkeley to comply with the UC Berkeley HMBPs show that the use or storage of regulated substances at any current UC Berkeley location is not large enough to trigger CalARP requirements. Thus, although the UC Berkeley HMBPs require UC Berkeley to define emergency response procedures, a risk management plan under CalARP does not need to be submitted, which means maximum storage quantities are below levels that would potentially cause off-site consequences. Inventories of hazardous materials used and stored at the project site would be conducted in accordance with UC Berkeley best practices. The project is not anticipated to generate quantities of hazardous materials that would cause UC Berkeley to exceed CalARP thresholds. Should that occur, UC Berkeley would comply with all applicable CalARP reporting requirements, including preparation of a risk management plan, if required.

The project also would comply with the CBC, which identifies the minimum standards for structural design and construction in California, including specific requirements for seismic safety. In addition, the project would comply with the UC Seismic Safety Policy, which requires design provisions for new structures not included in the CBC, including adequate anchorage of nonstructural building elements, such as equipment and material storage facilities. Construction according to these standards would minimize the potential for accidental releases of hazardous materials during an earthquake.

Because the project would comply with all applicable federal and state laws and UC Berkeley programs, practices, and procedures related to the transportation, storage, use, and disposal of hazardous materials, the potential for a release of hazardous materials would be minimized, and prompt and effective cleanup would be required if an accidental release occurs. Therefore, the impact related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials under the project would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-3: The project would not emit or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

As discussed in Section 3.8.2, "Environmental Setting," the Berkeley School, an early childhood center located at 2030 Francisco Street, is approximately 0.25 mile northwest of the project site.

As discussed in Section 3.2, "Air Quality," coarse particulate matter is a type of air pollutant with potential to aggravate respiratory illnesses and cause early death in people with heart and lung disease. Fugitive dust is a contributor of coarse particulate matter emissions in the atmosphere. During project construction, fugitive dust would be generated during demolition, ground-disturbing, and material-loading activities and from vehicles traveling over unpaved surfaces. The amount of dust generated during construction would be highly variable and dependent on the amount of material disturbed, the type of material, moisture content, and meteorological conditions. As discussed in Section 3.2, "Air Quality," the contractor would be required to implement BAAQMD's basic control measures, as detailed in CBP AIR-2, during the construction period:

- **CBP AIR-2**: UC Berkeley will continue to comply with the current Bay Area Air Quality Management District basic control measures for fugitive dust control. The requirement to comply with the basic control measures will be identified in construction bids. The Bay Area Air Quality Management District's current basic control measures include:
  - Water all active construction areas at least twice daily, or as often as needed to control dust emissions. 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 will be used whenever possible.
  - Pave, apply water twice daily or as often as necessary to control dust, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
  - 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).
  - Sweep daily (with water sweepers using reclaimed water if possible) or as often as needed all paved access roads, parking areas and staging areas at the construction site to control dust.
  - Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material.
  - Hydroseed or apply nontoxic soil stabilizers to inactive construction areas.
  - Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
  - Limit vehicle traffic speeds on unpaved roads to 15 miles per hour.
  - Replant vegetation in disturbed areas as quickly as possible.

Compliance with these control measures would ensure that fugitive dust generated by construction activities would not expose off-site sensitive receptors to substantial concentrations of air pollutants. Potential health risks for occupants of the nearby school resulting from project-related routine air emissions of hazardous chemicals are analyzed in Section 3.2, "Air Quality." This EIR includes completion of a construction Health Risk Assessment to ensure that emissions do not exceed identified thresholds for health risk.

As discussed for Impact 3.8-1, project operation would involve the handling of hazardous materials. Hazardous materials would not be used or stored at the project site in quantities sufficient to pose a risk to occupants of the nearby school in case of an accidental release. Hazardous materials in laboratories are typically handled in small quantities, in which case potential consequences of accidental releases would be limited to a single building; people outside the building would not be exposed to significant amounts of hazardous materials. Furthermore, on a quarterly basis, EH&S compares quantities of chemicals stored in each UC Berkeley campus location relative to the CalARP thresholds. Under CalARP, if the quantities of a particular chemical exceed the threshold for that chemical, UC Berkeley is required to prepare a risk management plan to prevent off-site consequences from accidental releases of the hazardous materials stored in quantities above the threshold. The quantities of chemicals currently stored in laboratories and other locations on the UC Berkeley campus do not exceed the CalARP thresholds, so a risk management plan is not required. If the project stores or handles specific hazardous chemicals in quantities that causes UC Berkeley to exceed CalARP thresholds, a risk management plan would be required to prevent off-site consequences from accidental releases.

Furthermore, UC Berkeley would continue to comply with Public Resources Code Section 21151.4, which requires disclosure of potential health impacts associated with any projects near schools.

As discussed above, the quantity of chemicals that would be stored in the proposed laboratory facilities would be small, and UC Berkeley would continue to evaluate chemical storage on the UC Berkeley campus relative to CalARP thresholds and comply with CalARP regulations. Compliance with existing laws, regulations, policies, and procedures would be sufficient to ensure that the project would not emit or handle hazardous or acutely hazardous materials, substances, or waste in a manner that would create a significant hazard to the occupants of any existing or proposed school. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-4: The project would not create a significant hazard to the public or the environment by being located on a site included on the Cortese List.

As discussed in Section 3.8.2, "Environmental Setting," the project site is not included on a list of facilities or sites identified as meeting the Cortese List requirements. However, the Phase I ESA identified a REC with respect to the former dry-cleaning business that occupied the northern portion of the project site from 1946 to 1954. During this time, the use of hazardous materials was not subject to common regulatory oversight. No indications of dry-cleaning operations were found as part of the site investigation. Nonetheless, it is possible that undocumented releases of chlorinated solvents, such as PCE, occurred at the project site. Therefore, soil gas and the potential for vapor intrusion is a potential issue of concern at the project site. The Phase I ESA recommends that soil gas sampling be conducted within the project site to determine whether cleanup and remediation actions are warranted. In addition, the Phase I ESA recommends preparation and implementation of a soils management plan.

Additionally, UC Berkeley would be required to comply with all existing laws, regulations, policies, and procedures to prevent the release of hazardous materials into the environment. To ensure compliance, UC Berkeley would implement CBP HAZ-5, listed below, to reduce potential impacts related to existing soil and groundwater contamination at the project site, if contamination is identified:

- **CBP HAZ-5**: UC Berkeley will continue to perform site histories and due diligence assessments of all sites where ground-disturbing construction is proposed, to assess the potential for soil and groundwater contamination resulting from past or current site land uses at the site or in the vicinity. The investigation will include review of regulatory records, historical maps and other historical documents, and inspection of current site conditions. UC Berkeley will act to protect the health and safety of workers or others potentially exposed should hazardous site conditions be found.

UC Berkeley also would implement the recommendations of the Phase I ESA, as described above, in accordance with the requirements of CBP HAZ-5. UC Berkeley would prepare and implement a soils management plan, which would identify, as necessary, permitting requirements, soil-testing methods and results, procedures for the removal of contaminated soil, landfills that accept contaminated soils, and safety protocols for construction workers handling contaminated soils. Any cleanup and remediation actions recommended as part of the assessment would be implemented before project construction in compliance with requirements of the applicable oversight agency (e.g., DTSC, SWRCB, and San Francisco Bay RWQCB). Project construction would be permitted after the cleanup and remediation actions are completed to the satisfaction of the oversight agency. These actions would protect the health and safety of construction workers and the public if hazardous site conditions are identified.

Based on the discussion above, regulatory processes and UC Berkeley's CBP would be sufficient to ensure that implementing the project would not create a significant hazard to the public or the environment if soil or groundwater contamination is identified at the project site. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-5: Implementing the project would not impair implementation of or physically interfere with an adopted emergency response or evacuation plan.

As described in Section 3.8.1, "Regulatory Setting," and Section 3.8.2, "Environmental Setting," emergency response at the UC Berkeley campus is a coordinated effort between the UC Berkeley OEM and local emergency service providers. This discussion evaluates the potential for project implementation to interfere with the operations of UC Berkeley OEM and emergency response providers and coordination and cooperation between such agencies.

Construction

The project would involve minor modifications to existing curbs, gutters, and sidewalks, including construction of a new ramp off University Avenue that would provide vehicle access to the proposed facilities. As discussed in Section 3.8.1, "Regulatory Setting," University Avenue is designated by the City of Berkeley as an emergency access and evacuation road (City of Berkeley 2011).

Construction activities would be required to follow the provisions set forth in the most current CFC to ensure fire safety. For example, Section 3310.1 of the CFC identifies minimum requirements to provide required emergency access during construction activities. In addition, UC Berkeley would be required to obtain all applicable City of Berkeley permits for any construction work within the public right-of-way, including sidewalks and streets. As a condition of permit approval, UC Berkeley would be required to prepare and implement a traffic control plan that would demonstrate appropriate traffic handling during construction activities for all work that may affect access to the traveling public and emergency service providers. To ensure compliance with these requirements, UC Berkeley would implement the CBPs TRAN-5 through TRAN-7, listed below, to reduce construction-period impacts on circulation and congestion on nearby roadways:

- **CBP TRAN-5**: UC Berkeley will require contractors working on major new construction or major renovation projects to develop and implement a Construction Traffic Management Plan that reduces construction-period impacts on circulation and parking within the vicinity of the project site. The Construction Traffic Management Plan will address job-site access, vehicle circulation, bicycle and pedestrian safety, and be coordinated with the City of Berkeley Public Works Department when projects require temporary modifications to city streets.
- **CBP TRAN-6**: For each construction project, UC Berkeley will require the prime contractor to prepare a Construction Traffic Management Plan which will include the following elements:
  - Proposed truck routes to be used, consistent with the City truck route map.
  - Construction hours, including limits on the number of truck trips during the morning (AM) and evening (PM) peak traffic periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.), if conditions demonstrate the need.
  - Proposed employee parking plan (number of spaces and planned locations).
  - Proposed construction equipment and materials staging areas, demonstrating minimal conflicts with circulation patterns.
  - Expected traffic detours needed, planned duration of each, and traffic control plans for each.
  - Identifying bicycle and pedestrian detours and safety plan, including solutions to address impacts to accessible routes.
- **CBP TRAN-7**: UC Berkeley will manage project schedules to minimize the overlap of excavation or other heavy truck activity periods that have the potential to combine impacts on traffic loads and street system capacity, to the extent feasible.

Compliance with these requirements would ensure that project construction would not interfere with the operations of UC Berkeley OEM and local emergency response providers.

Operation

The project would be designed and maintained in accordance with applicable standards in the CFC and CBC associated with vehicular access and ingress/egress. Compliance with these standards would ensure that the project design incorporates building and life safety measures and facilitates implementation of emergency response plans. Any improvements to roadways within the City's right-of-way would require the City of Berkeley's approval. The City of Berkeley would review the project plans to ensure that adequate emergency vehicle access is provided. The project would not result in any permanent changes in circulation patterns on the City's roadway network.

There are approximately 16 employees working in the two commercial buildings on the project site. The project would result in up to 340 and 750 employment opportunities in the South Building and North Building, respectively.

Therefore, the project would result in a net increase of up to 1,074 employees, which would have the potential to contribute to an increase in the number of vehicle trips in the project vicinity. The increased number of vehicle trips could increase delays at the existing intersections within the project vicinity, which could interfere with emergency response time. However, emergency vehicles often use multiple routes, depending on the time of day and traffic conditions. In addition, emergency vehicles are not subject to traffic control devices, such as stop signs or traffic signals, and are able to bypass other vehicles, which are required to yield the right-of-way per California Vehicle Code Section 21806. Emergency vehicles are also permitted to use transit-only lanes or other vehicle-restricted lanes if necessary. Therefore, peak-period traffic congestion generally does not result in delays for emergency vehicles. As part of the project, UC Berkeley would also implement the UC Berkeley CBP PS-1 and CBP PS-2, listed below, to ensure that adequate service ratios are maintained and that adequate emergency access is provided for new facilities:

- **CBP PS-1**: The University of California Police Department will continue its partnership with the City of Berkeley police department to review service levels in the City Environs Properties.
- **CBP PS-2**: UC Berkeley will continue its partnership with the Lawrence Berkeley National Laboratory, Alameda County Fire Department, Oakland Fire Department, and Berkeley Fire Department to ensure adequate fire and emergency service levels to UC Berkeley facilities. This partnership will include consultation on the adequacy of emergency access routes to all new UC Berkeley buildings. UC Berkeley will also continue to work closely with external fire management partners related to regional wildfire prevention, including the Hills Emergency Forum, Diablo Firesafe Council, and various neighborhood groups and internal interdisciplinary planning teams.

Compliance with these requirements would ensure that project operation would not interfere with the operations of UC Berkeley OEM and local emergency response providers.

Summary

As described above, construction activities would comply with the provisions of the CFC and the conditions of the applicable construction permits from the City of Berkeley, and the project would be designed and maintained in accordance with applicable standards associated with vehicular access; therefore, interference with existing emergency response or evacuation plans would not occur during project operation. Design review also would be coordinated with local emergency response providers to ensure that circulation proposed under the project does not hinder emergency access or evacuation. Therefore, implementing the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.9 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrology and water quality conditions at and near the project site and analyzes the potential for the project to affect water quality, including resulting in substantial siltation or erosion; cause flooding due to the alteration of drainage patterns; or deplete groundwater supplies or interfere with groundwater recharge.

No comments related to hydrology or water quality were received in response to the notice of preparation (NOP). The NOP and the comments received are contained in Appendix A.

3.9.1 Regulatory Setting

FEDERAL

Clean Water Act

The US Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) of 1972, codified at 33 US Code Sections 1251–1376, is the primary federal law that governs and authorizes water quality control activities by EPA, as well as the states. The elements of the CWA that are applicable to the project are discussed in the following sections.

<u>Water Quality Criteria/Standards</u>

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of state regulations below, the State Water Resources Control Board (SWRCB) and its nine regional water quality control boards (RWQCBs) have designated authority in California to identify beneficial uses and adopt applicable water quality objectives.

<u>CWA Section 303(d) Impaired Waters List</u>

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires states to develop a total maximum daily load (TMDL) for each of the listed pollutants. A TMDL is the amount of pollutant that the water body can receive and still comply with water quality objectives. A TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. In California, implementation of TMDLs is achieved through water quality control plans, known as Basin Plans, of the state RWQCBs. The Basin Plan for the San Francisco Bay RWQCB (Region 2), which has jurisdiction over the project site, is described in the discussion of regional regulations below.

<u>National Pollutant Discharge Elimination System</u>

The National Pollutant Discharge Elimination System (NPDES) permitting program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States, including discharges from municipal separate storm sewer systems (MS4s). Federal NPDES permitting regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

Under the NPDES permitting program, all facilities that discharge pollutants into waters of the United States are required to obtain an NPDES permit. Requirements for stormwater discharges are also regulated under this program. In California, the NPDES permitting program is administered by SWRCB through the nine RWQCBs. The project site is under the jurisdiction of the San Francisco Bay RWQCB and is subject to the waste discharge requirements for the Phase II Small MS4 Permit (Order No. 2013-0001-DWQ, NPDES Permit No. CAS000004) with the last amendment, Order No. WQ 2018-0007-EXEC, issued in March 2018.

Under Provision F.5.g of the Phase II Small MS4 Permit, the co-permittees use their planning authority to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows. Projects that create or replace 5,000 square feet or more of impervious surface need to implement source-control measures and sizing criteria for stormwater retention and treatment.

National Flood Insurance Act

The Federal Emergency Management Agency (FEMA) is tasked with responding to, planning for, recovering from, and mitigating against disasters. The Federal Insurance and Mitigation Administration within FEMA is responsible for administering the National Flood Insurance Program (NFIP) and administering programs that aid with mitigating future damages from natural hazards.

FEMA prepares Flood Insurance Rate Maps (FIRMs) that delineate the regulatory floodplain to assist local governments with the land use planning and floodplain management decisions needed to meet the requirements of the NFIP. Floodplains are divided into flood hazard areas, which are areas designated according to their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas are the areas identified as having a 1-percent chance of flooding each year (otherwise known as the 100-year flood). In general, the NFIP mandates that development does not proceed within the regulatory 100-year floodplain if the development is expected to increase flood elevation by 1 foot or more.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code Sections 13000 et seq.) is the basic water quality control law for California. This act established SWRCB and divides the state into nine regional basins, each under the jurisdiction of an RWQCB. SWRCB is the primary state agency responsible for protecting California’s water quality and groundwater supplies. The RWQCBs carry out the regulation, protection, and administration of water quality in each region. Each RWQCB is required to adopt a water quality control plan, or basin plan, that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region’s groundwater and surface water, and local water quality conditions and problems. The Porter-Cologne Act also authorizes SWRCB and the RWQCBs to issue and enforce waste discharge requirements, NPDES permits, and other approvals. As stated previously, the project site is within the jurisdiction of the San Francisco Bay RWQCB.

State Water Resources Control Board Construction General Permit

Construction activities that disturb 1 or more acres of land and therefore could affect hydrologic resources must comply with the requirements of the statewide NPDES Construction General Permit (2009-0009-DWQ) as amended by Orders 2010-0014-DWQ, 2012-0006-DWQ, and 2022-0057-DWQ. Under the terms of the permit, applicants must file Permit Registration Documents (PRDs) with SWRCB before the start of construction. The PRDs include a notice of intent, risk assessment, site map, stormwater pollution prevention plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to SWRCB via the Stormwater Multiple Application and Report Tracking System website.

Applicants must also demonstrate conformance with applicable best management practices (BMPs) and prepare a SWPPP containing a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. The SWPPP must list BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for nonvisible pollutants if there is a failure of the BMPs, and a sediment-monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Some sites (Risk Level 2 and 3) also require implementation of a rain event action plan 48 hours before a 50-percent or greater chance of a precipitation event. In addition, Alameda County typically requires preparation of an erosion and sediment control plan, which may be included in the SWPPP for projects subject to the Construction General Permit.

Sustainable Groundwater Management Act

The California Sustainable Groundwater Management Act (SGMA), a three-bill package signed into law in 2014, created a framework for the management of groundwater sources throughout the state. Under SGMA, local agencies form groundwater sustainability agencies (GSAs) and create groundwater sustainability plans (GSPs). Timelines and requirements are based on basin priority. The project site is within the East Bay Plain Subbasin of the Santa Clara Valley basin. Under SGMA, the East Bay Plain Subbasin is considered a medium-priority basin. SGMA requires medium- and high-priority basins to develop GSAs and GSPs and manage groundwater for long-term sustainability. The East Bay Municipal Utility District (EBMUD) and the City of Hayward are the exclusive GSAs for the East Bay Plain Subbasin. EBMUD and City of Hayward developed the East Bay Plain Subbasin GSP, which was approved by the California Department of Water Resources (DWR) on July 27, 2023 (EBMUD and City of Hayward 2022).

UNIVERSITY OF CALIFORNIA

UC Berkeley Environmental Enforcement Code

The Environmental Enforcement Code was adopted in 2018 for the purpose of enforcing federal, state, and local environmental rules and regulations on all properties owned, operated, or controlled by the Board of Regents of UC and administered by UC Berkeley. The policy requires UC Berkeley to conduct investigations of environmental releases and, where appropriate, obtain technical or monitoring reports from any person suspected of causing an environmental release, including the release of pollutants to waters. The code is enforced by the UC Police Department (UCPD) in consultation with the UC Berkeley Office of Environment, Health & Safety (EH&S). UCPD officers can issue citations, detain violators, or refer environmental criminal cases to the County District Attorney’s Office, as appropriate.

Strawberry Creek Management Plan

The Strawberry Creek Restoration Program began in 1987 in response to UC Berkeley and community concerns over the deteriorated quality of Strawberry Creek. UC Berkeley’s EH&S office sponsored a comprehensive study of the creek, published in December 1987 as the Strawberry Creek Management Plan (SCMP). The SCMP provides recommendations for implementation of management strategies for point and nonpoint source pollution control, channel stabilization, aquatic and riparian habitat restoration, and watershed management. Although the SCMP boundaries, as approved in 1987, do not extend to the project site, the plan addresses management strategies for UC Berkeley to undertake at UC property within the broader Strawberry Creek watershed. As a result, the SCMP is considered applicable to the project site.

UC Berkeley 2021 Long Range Development Plan

The UC Berkeley 2021 Long Range Development Plan contains the following objective related to hydrology and water quality that is applicable to the project (UC Berkeley 2021a):

- Enhance the health of Strawberry Creek and campus stormwater systems by implementing green infrastructure strategies, such as stormwater detention, bio-retention, rain gardens, rainwater harvesting, smart irrigation, green roofs, and permeable pavement.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. The following sections of the Campus Design Standards are relevant to the project:

- Section 1 (General Requirements):
  - Section 01.57.13, Temporary Erosion and Sediment Control, specifies requirements related to erosion and sediment control during construction activities; construction near creeks, wetlands, and other sensitive areas; and development in areas with flood or earthquake hazards.
  - Section 01.57.19, Temporary Environmental Controls, specifies requirements for stormwater pollution control in the design of new buildings and prohibits the disposal of residual materials into surface waters, wetlands, and the storm drain system.
  - Section 01.57.23, Temporary Storm Water Pollution Controls, include requirements for implementing surface-water pollution prevention measures at construction sites and designing projects to minimize impervious surfaces through stormwater detention practices.
- Section 31 (Earthwork):
  - Section 31.23.00, Excavation and Fill, specifies dewatering requirements, including requirements for the disposal of water from dewatering activities.
- Section 33 (Utilities):
  - Section 33.40.00, Storm Drainage Utilities, specifies requirements for the design of storm drainage facilities.

UC Berkeley Continuing Best Practices

UC Berkeley implements continuing best practices (CBPs) to ensure that environmental impacts from development and ongoing UC Berkeley operations would be reduced or avoided to the greatest extent feasible. CBPs are implemented by UC Berkeley as part of development efforts and ongoing operations. Relevant project-specific CBPs would be implemented as part of the project, as described in Chapter 2, “Project Description.” Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are listed where relevant in the impact analyses presented in this section, to illustrate how they would help to reduce or avoid environmental impacts from the project. A complete list of CBPs is provided in Appendix B, “UC Berkeley Continuing Best Practices,” of this Draft EIR.

REGIONAL

Water Quality Control Plan for the San Francisco Bay Region

Under the Porter-Cologne Act, each RWQCB must formulate and adopt a water quality control plan for its region. As stated previously, the project site is within the jurisdiction of the San Francisco Bay RWQCB, which includes all the San Francisco Bay’s segments extending to the mouth of the Sacramento–San Joaquin Delta. The San Francisco Bay RWQCB addresses regionwide water quality issues through the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin, which was adopted in 1995 and amended most recently in 2023 (San Franscico RWQCB 2023).

The Basin Plan includes a comprehensive list of water bodies within the region and detailed language about the components of applicable Water Quality Objectives (WQOs). The Basin Plan recognizes natural water quality, existing and potential beneficial uses, and water quality problems associated with human activities throughout the region. Through the Basin Plan, the San Francisco RWQCB executes its regulatory authority to enforce the implementation of TMDLs and to ensure compliance with surface WQOs. The Basin Plan includes both narrative and numerical WQOs designed to provide protection for all designated and potential beneficial uses in all its principal streams and tributaries. Applicable beneficial uses include municipal and domestic water supply; irrigation; noncontact and contact water recreation; groundwater recharge; freshwater replenishment; hydroelectric power generation; and preservation and enhancement of wildlife, fish, and other aquatic resources.

East Bay Municipal Utility District Wastewater Control Ordinance and Special Discharge Permit

EBMUD's Wastewater Control Ordinance regulates wastewater discharges into its wastewater system and includes discharge limits for select pollutants. The ordinance establishes regulations and charges for the collection, treatment, and disposal of wastewater, as well as penalties for violations. In accordance with Title IV of the Wastewater Control Ordinance, all dischargers whose wastewater requires special regulation or contains industrial wastes requiring source control are required to secure a wastewater discharge permit. EBMUD issues special discharge permits for short-term, limited-volume discharge of wastewater or groundwater that meets special discharge criteria. A special discharge permit is required for projects that involve construction dewatering, such as groundwater or stormwater generated from trenching or excavation operations.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of hydrology and water quality impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of hydrology and water quality impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.9.2 Environmental Setting

WATERSHED AND DRAINAGE AREA

The project site is within the Strawberry Creek watershed (UC Berkeley 2021b: Figure 5.9-1). Strawberry Creek is the primary surface water in the Strawberry Creek watershed. The creek has two main branches, the North Fork and South Fork, which originate in Berkeley Hills and form a confluence within the UC Berkeley Campus Park. After the confluence, the main branch of Strawberry Creek continues to Oxford Street near Center Street (approximately 1.5 blocks south of the project site). At this location, the creek enters a culvert and continues to flow largely underground until it daylights in private backyards and at Strawberry Creek Park. From Strawberry Creek Park, the creek ultimately flows into San Francisco Bay (UC Berkeley 2021b).

The broader Strawberry Creek watershed receives runoff from approximately 1,163 acres (1.6 square miles). The watershed is approximately 40 percent urbanized, and the remainder consists of undeveloped, largely natural wildlands. Approximately 800 acres of this watershed is under the jurisdiction of UC Berkeley, where elevations range from 200 feet above mean sea level (msl) to 1,650 feet above msl. Stormwater runoff from the watershed follows the aforementioned course of Strawberry Creek and empties into San Francisco Bay near University Avenue (UC Berkeley 2021b).

STORMWATER DRAINAGE

Stormwater from the project site is collected via existing stormwater controls (e.g., curbs and gutters) in the area and delivered to the City of Berkeley's storm drain system. Existing stormwater catch basins are located near the intersections of University Avenue with Walnut Street and Oxford Street. The stormwater runoff is then discharged to a culverted portion of Strawberry Creek west of the Campus Park and is eventually conveyed to the San Francisco Bay (UC Berkeley 2021b).

GROUNDWATER HYDROLOGY

The project site is within the East Bay Plain Subbasin, which is part of the larger Santa Clara Valley Groundwater Basin (DWR 2023). The East Bay Plain Subbasin is considered a medium-priority basin and is not critically overdrafted (i.e., the groundwater demand does not exceed the basin's sustainable recharge). EBMUD and the City of Hayward are the exclusive GSAs for the East Bay Plain Subbasin. EBMUD and City of Hayward developed the East Bay Plain Subbasin GSP, which was approved by DWR on July 27, 2023 (EBMUD and City of Hayward 2022).

The East Bay Plain is a northwest-trending alluvial plain that is bounded on the north by San Pablo Bay, on the east by the Hayward Fault, and on the south by the Niles Cone Groundwater Basin and that extends beneath San Francisco Bay to the west. The East Bay Plain Subbasin includes a confined, deep aquifer in the southern half of the subbasin. The deep aquifer thins out to the north and becomes an insignificant source of groundwater as it approaches an area just south of Downtown Oakland. The confined, deep aquifer is not found in the remaining parts of the East Bay Plain Subbasin; however, areas to the far north, within the limits of Richmond and San Pablo, have aquifers that are capable of producing water in quantities sufficient to serve the irrigation needs of schools, parks, and a local golf course. The remaining portion of the East Bay Plain Subbasin has shallow aquifers that cannot serve as a significant source of groundwater (UC Berkeley 2021b).

According to the Phase I Environmental Site Assessment prepared for the project, the depth to groundwater in the vicinity of the project site is anticipated to be approximately 18 feet below the ground surface based on a previous subsurface investigation that addressed the project site (Partner Engineering and Science 2023).

WATER QUALITY

Surface Water Quality

Surface water quality is affected by point source and nonpoint source pollutants. Point source pollutants are those emitted at a specific point, such as a pipe, and nonpoint source pollutants are typically generated by surface runoff from diffuse sources, such as streets, paved areas, and landscaped areas. Point source pollutants are controlled with pollutant discharge regulations or waste discharge requirements. Nonpoint source pollutants are more difficult to monitor and control, although they are important contributors to surface water quality in urban areas.

Stormwater runoff pollutants vary based on land use, topography, the amount of impervious surface, and the amount and frequency of rainfall and irrigation practices. Runoff in developed areas typically contains oil, grease, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. The highest pollutant concentrations usually occur at the beginning of the wet season during the "first flush," when early rainfall flushes out pollutants that have accumulated on hardscape surfaces during the dry months.

The San Francisco Bay RWQCB monitors surface water quality through implementation of the Basin Plan and designates beneficial uses for surface water bodies and groundwater. Existing beneficial uses of Strawberry Creek are warm freshwater habitat, wildlife habitat, and contact and noncontact water recreation. Beneficial uses for the central San Francisco Bay, the receiving water of Strawberry Creek, are industrial service supply, industrial process supply, commercial and sport fishing, shellfish harvesting, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact recreation, noncontact water recreation, and navigation (San Francisco Bay RWQCB 2023: Table 2-1).

In accordance with Section 303(d) of the CWA, the state must present the California Environmental Protection Agency with a list of impaired water bodies that do not meet water quality standards. After a water body has been placed on the 303(d) list of impaired waters, states are required to develop a TMDL threshold to address each pollutant causing impairment. A TMDL defines how much of a pollutant a water body can tolerate and still meet water quality standards. Refer to Section 3.9.1, "Regulatory Setting," for additional information.

The segment of Strawberry Creek downstream of the project site is not included on the 303(d) list of impaired water bodies; however, the central San Francisco Bay, which is the receiving water of Strawberry Creek, is listed as an impaired water body. The central San Francisco Bay is classified as a Category 5 water segment, which is a water segment where standards are not met and a TMDL is required but not yet completed, for at least the pollutants being listed for this segment. Impairments for this water body are chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, dioxin compounds, furan compounds, invasive species, mercury, polychlorinated biphenyls (PCBs), PCBs (dioxin-like), selenium, and trash (San Francisco Bay RWQCB 2017).

Groundwater Quality

Beneficial uses for the East Bay Plain Subbasin are municipal and domestic supply, industrial process supply, industrial service supply, agricultural supply, and freshwater replenishment (San Francisco Bay RWQCB 2023: Table 2-2).

As reported in the East Bay Plain Subbasin GSP, groundwater quality has been evaluated for several major constituents for which a maximum containment level (MCL) is established. An MCL is defined as "the highest level of a contaminant that is allowed in drinking water." In general, concentrations of total dissolved solids, chloride, and nitrate are less than the MCL in the intermediate and deep aquifers, with localized areas in the shallow aquifer having concentrations above the MCL for these contaminants. Arsenic and manganese were detected in concentrations exceeding MCLs in shallow, intermediate, and deep aquifers (EBMUD and City of Hayward 2022).

Historical commercial and industrial activities in the subbasin have resulted in the release of pollutants to the groundwater system. Within the East Bay Plain Subbasin, a total of 14 sites with existing perchloroethene, trichloroethene, and/or hexavalent chromium concentrations above the MCL were identified. The depth of contamination was limited to the upper 50 feet below ground surface at most sites. Other sites with minor contamination are present throughout the subbasin; review of these sites generally indicated that environmental site contamination is limited to the upper portion (i.e., upper 120 feet) of the shallow aquifer. Overall, groundwater is generally not affected by contaminants in the intermediate and deep aquifer, with contamination limited to the shallow aquifer (EBMUD and City of Hayward 2022).

WATER SUPPLIES

EBMUD supplies water to parts of Alameda and Contra Costa Counties, including the project site. As discussed further in the environmental setting discussion in Section 3.15, "Utilities and Service Systems," approximately 90 percent of EBMUD's water supply originates from the Mokelumne River, and the remaining 10 percent originates from local runoff from East Bay area watersheds. EBMUD does not extract groundwater as a source of its municipal water supplies. As noted above, the confined, deep aquifer of the East Bay Plain, which is present in the southern half of the subbasin, is capable of producing water in quantities sufficient only to meet municipal supply demands. The deep aquifer thins out to the north and becomes an insignificant source of groundwater south of Downtown Oakland. The remaining portion of the East Bay Plain Subbasin, which underlies the project site, has shallow aquifers that cannot serve as a significant source of groundwater. The groundwater basin is not currently the local water supply and does not serve local or planned land uses (EBMUD 2021).

FLOOD HAZARDS

The project site is not within an area designated as a 100-year floodplain by FEMA (UC Berkeley 2021b: Figure 5.9-2). The UC Berkeley campus, including the project site, is not within a dam or tsunami inundation zone and is not in proximity to a large body of water that could trigger a seiche (UC Berkeley 2021b).

3.9.3 Impact Analysis and Mitigation Measures

METHODOLOGY

Evaluation of potential hydrologic and water quality impacts is based on a review of existing documents and studies that address water resources in the vicinity of the project. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local laws, ordinances, and regulations.

THRESHOLDS OF SIGNIFICANCE

An impact on hydrology or water quality would be significant if implementation of the project would:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:
  - result in substantial erosion or siltation on- or off-site;
  - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site;
  - create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
  - impede or redirect flood flows;
- in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

ISSUES NOT DISCUSSED FURTHER

Impede or Redirect Flood Flows or Risk Release of Pollutants Due to Project Inundation

As discussed in Section 3.9.2, "Environmental Setting," the project site is not within a flood hazard, tsunami, or seiche zone (UC Berkeley 2021b). Therefore, implementing the project would not alter drainage patterns in a manner that would impede or redirect flood flows and would not risk release of pollutants due to project inundation. These issues are not discussed further.

IMPACT ANALYSIS

Impact 3.9-1: The project would not violate water quality standards or waste discharge requirements or substantially degrade surface or ground water quality during project construction.

Site clearing, grading, excavation, and other construction activities associated with the project have potential to degrade water quality through soil erosion and by increasing the amount of silt and debris carried in runoff from the project site. Additionally, the use of construction materials, such as fuels, solvents, and paints, may present a risk to surface water quality. Finally, the refueling and parking of construction vehicles and other equipment on-site during construction may result in oil, grease, or related pollutant leaks and spills that may discharge into the storm drain system.

Because the project would result in the disturbance of more than 1 acre of land, the project must obtain coverage under the Construction General Permit, which includes requirements for the preparation and implementation of a project-specific SWPPP. The SWPPP would identify BMPs to control sediment, erosion, and hazardous materials contamination of runoff during construction and prevent contaminants from reaching receiving water bodies. The Construction General Permit also requires UC Berkeley to file a PRD with SWRCB, which includes a notice of intent, risk assessment, site map, annual fee, signed certification statement, SWPPP, and postconstruction water balance calculations before the start of construction activities. The construction contractor is required to maintain a copy of the SWPPP at the project site and implement all applicable BMPs identified in the SWPPP during construction activities. Before issuance of a grading permit, UC Berkeley is required to provide proof of filing of the PRDs with the SWRCB. Categories of potential BMPs that would be implemented for this project, which are identified in the California Stormwater Quality Association's Construction BMP Handbook, are described in Table 3.9-1.

Table 3.9-1 Construction Best Management Practices

Category	Purpose	Examples
Erosion Controls and Wind Erosion Controls	▸ Use project scheduling and planning to reduce oil or vegetation disturbance (particularly during the rainy season). ▸ Prevent or reduce erosion potential by diverting or controlling drainage. ▸ Prepare and stabilize disturbed soil areas.	Scheduling, preservation of existing vegetation, hydraulic mulch, hydroseeding, soil binders, straw mulch, geotextile and mats, wood mulching, earth dikes and drainage swales, velocity dissipation devices, slope drains, streambank stabilization, compost blankets, soil preparation/roughening, and nonvegetative stabilization.
Sediment Controls	▸ Prevent the mobilization of soil particles through the use of tarping, matting, or other covers.	Silt fence, sediment basin, sediment trap, check dam, fiber rolls, gravel bag berm, street sweeping and vacuuming, sandbag barrier, straw bale barrier, storm drain inlet protection, manufactured linear sediment controls, compost socks and berms, and biofilter bags.
Wind Erosion Controls	▸ Apply water or other dust palliatives to prevent or minimize dust nuisance.	Dust control soil binders, chemical dust suppressants, covering stockpiles, permanent vegetation, mulching, watering, temporary gravel construction, synthetic covers, and minimization of disturbed area.
Tracking Controls	▸ Minimize the tracking of soil off-site by vehicles.	Stabilize construction roadways and construction entrances/exits, and entrance/outlet tire wash.
Nonstormwater Management Controls	▸ Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment. ▸ Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize nonstormwater discharges and contamination of any such discharges.	Water conservation practices, temporary stream crossings, clear water diversions, illicit connection/discharge, potable and irrigation water management, and the proper management of the following operations: paving and grinding, dewatering, vehicle and equipment cleaning, fueling and maintenance, pile driving, concrete curing, concrete finishing, demolition adjacent to water, material over water, and temporary batch plants.
Waste Management and Controls (i.e., good housekeeping practices)	▸ Manage materials and wastes to avoid contamination of stormwater.	Stockpile management, spill prevention and control, solid waste management, hazardous waste management, contaminated soil management, concrete waste management, sanitary/septic waste management, liquid waste management, and management of material delivery storage and use.

Source: UC Berkeley 2021b.

Submittal of the PRDs and implementation of the SWPPP throughout the construction phase of the project would address anticipated and expected pollutants of concern from construction activities. Furthermore, during the construction monitoring phase, EH&S or an approved third party would verify that the project complies with all applicable requirements and BMPs.

As part of the project, UC Berkeley would implement hydrology and water quality CBPs HYD-1, HYD-2, and HYD-6 during the construction phase:

- **CBP HYD-1**: During the plan check review process and construction phase monitoring, UC Berkeley Office of Environment, Health & Safety will review each development project to determine whether project runoff would increase pollutant loading and verify that the proposed project complies with all applicable requirements (e.g., Regional Water Quality Control Board and Campus Design Standards requirements) and best management practices (e.g., those described in the California Stormwater Quality Association's Construction BMP Handbook).
- **CBP HYD-2**: UC Berkeley will continue implementing an urban runoff management program containing best management practices, as published in the Strawberry Creek Management Plan, and as developed through the Stormwater Permit Annual Reports completed for the Phase II municipal separate storm sewer system (MS4) permit. UC Berkeley will continue to comply with the MS4 stormwater permitting requirements by implementing construction and post-construction control measures and best management practices required by project-specific Stormwater Pollution Prevention Plans (SWPPPs) and by the Phase II MS4 permit to control pollution. SWPPPs will be prepared by the project contractor as required to prevent discharge of pollutants and to minimize sedimentation resulting from construction and the transport of soils by construction vehicles.
- **CBP HYD-6**: UC Berkeley will continue to develop and implement the recommendations of the Strawberry Creek Management Plan and its updates, and construct improvements as appropriate. These recommendations include, but are not limited to, minimization of the amount of land exposed at any one time during construction as feasible; use of temporary vegetation or mulch to stabilize critical areas where construction staging activities must be carried out prior to permanent cover of exposed lands; installation of permanent vegetation and erosion control structures as soon as practical; protection and retention of natural vegetation; and implementation of post-construction structural and non-structural water quality control techniques.

CBP HYD-1 requires EH&S to verify during the construction phase that the project would not increase pollutants in site runoff and that the project complies with applicable requirements and BMPs, such as those described in Table 3.9-1, above. CBP HYD-2 requires that UC Berkeley comply with permit requirements through implementing construction control measures and BMPs required by the project-specific SWPPP to control pollution. Lastly, under CBP HYD-6, the project would be developed in accordance with the recommendations of the Strawberry Creek Management Plan. Applicable recommendations during the construction phase include minimizing the amount of land exposed at any one time, installing permanent vegetation and erosion control structures as soon as practical, and using temporary vegetation or mulch to stabilize critical areas where construction staging activities must be carried out prior to permanent cover of exposed lands.

The project would involve excavation to approximately 20 feet below the ground surface for the basement of each building. As discussed in Section 3.9.2, "Environmental Setting," the depth to groundwater at the project site is inferred to be approximately 18 feet below the ground surface. Therefore, construction dewatering is anticipated. As discussed for Impact 3.8-4 in Section 3.8, "Hazards and Hazardous Materials," it is possible that undocumented releases of chlorinated solvents occurred in connection with a former use of the project site and that soil gas is a potential issue of concern. If groundwater contamination is identified during further site assessments, UC Berkeley would be required to obtain a permit from EBMUD and conduct testing before the discharge of groundwater in accordance with the requirements of CBP HAZ-5. A dewatering plan must be submitted by the contractor and approved by EH&S and Facilities Services before the start of construction to ensure that the disposal of groundwater is conducted in accordance with state and local regulations.

Because project construction would comply with the provisions of the Construction General Permit, EBMUD permit requirements for the discharge of groundwater, and UC Berkeley policies and CBPs related to managing pollutant runoff from construction sites, the project would not violate water quality standards or waste discharge requirements during construction. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-2: The project would not violate water quality standards or waste discharge requirements or substantially degrade surface or ground water quality during project operation.

Implementing the project would result in the development of approximately 7,000 square feet of pervious surfaces and approximately 74,000 square feet of impervious surfaces, representing an approximately 8.6-percent decrease in impervious surfaces compared to existing site conditions. Under the Phase II Small MS4 Permit, regulated projects that create and/or replace 5,000 square feet or more of impervious surfaces are required to use site design, source control, and stormwater treatment measures. The stormwater treatment facilities must be designed to infiltrate, evapotranspire, harvest/reuse, or biotreat stormwater from the 85th percentile 24-hour storm or the flow of runoff from a rainfall event equal to at least 0.2 inch per hour.

The project would be required to comply with the requirements of the Phase II Small MS4 Permit and incorporate low-impact development site design and BMPs to address postconstruction stormwater runoff to meet waste discharge requirements. As described in Chapter 2, "Project Description," pervious surfaces would be provided in the courtyard. The amount of new pervious surfaces associated with development of the courtyard would be determined during final project design. Stormwater drainage for the project site would connect to the City of Berkeley's storm drain system. While the project would reduce impervious surfaces compared to existing site conditions, if applicable, the project would pay into the campus's new post-construction stormwater management credit program. Sidewalk surface runoff around the project site would be directed by the downward slope of the project site to the south and west to existing City of Berkeley stormwater catch basins. In addition, a 12-inch storm drainage connection would be located on the southern side of each building.

UC Berkeley EH&S and Facilities Services also consider potential impacts on surface water, groundwater, and wastewater as a standard part of the project development and plan check review process. The review process may include evaluation of possible pollutants generated by the project and general compliance with the Phase II Small MS4 permit requirements. EH&S developed a postconstruction stormwater management checklist designed to guide planners, project managers, and inspectors through the requirements of the Phase II Small MS4 permit. In addition to providing guidance, part of the purpose of the checklist is to make sure that construction projects include required documentation for regulatory compliance. In the Final Inspection portion of the checklist, projects must submit to EH&S written documentation identifying who is responsible for operations and maintenance of any stormwater treatment systems, as well as an operations and maintenance manual if required by stormwater treatment type. EH&S requests the results of inspections, maintenance, and corrective actions on MS4-mandated stormwater facilities. In addition, before the start of each rainy season, EH&S sends a list of installed facilities to the Alameda County Vector Control Services and the San Francisco Bay RWQCB.

As part of the project, UC Berkeley would implement the hydrology and water quality CBPs HYD-1, HYD-2 and HYD-6 listed above and the following CBPs to minimize water quality impacts during project operation:

- CBP HYD-3: UC Berkeley will maintain a campuswide educational program regarding safe use and disposal of facilities maintenance chemicals and laboratory chemicals to prevent the discharge of these pollutants to Strawberry Creek and campus storm drains.
- CBP HYD-4: Where feasible, parking will be built in covered parking structures and not exposed to rain to address potential stormwater runoff pollutant loads.
- CBP HYD-5: Landscaped areas of development sites will be designed to absorb runoff from rooftops and walkways. Open or porous paving systems will be included in project designs, where feasible, to minimize impervious surfaces and absorb runoff.

CBP HYD-1 requires EH&S to review the project plans to ensure that the project would not increase pollutants in site runoff and that the project complies with applicable requirements (e.g., RWQCB and Campus Design Standards requirements). CBP HYD-2 requires that UC Berkeley comply with permit requirements through implementing postconstruction control measures and BMPs required by the project-specific SWPPP and the Phase II Small MS4 permit to control pollution. Under CBP HYD-3, UC Berkeley would follow campuswide practices regarding the safe use and disposal of facilities maintenance and laboratory chemicals to prevent the discharge of pollutants to

Strawberry Creek and storm drains. In compliance with CBP HYD-4, the proposed parking would be located aboveground in a covered parking structure and would not contribute to stormwater runoff pollutant loads during rain events. CBP HYD-5 requires landscaped areas to be designed in a manner that minimizes impervious surfaces and absorbs runoff. Lastly, under CBP HYD-6, the project would be developed in accordance with the recommendations of the Strawberry Creek Management Plan. Applicable recommendations to minimize water quality impacts during project operation include implementing postconstruction structural and nonstructural water quality control techniques.

Because implementing the project would decrease the extent of impervious surfaces at the project site and would comply with the provisions of the Phase II Small MS4 permit and with UC Berkeley policies and CBPs regarding site design for stormwater management, the project would not violate water quality standards or waste discharge requirements during operation. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-3: The project would not substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

As discussed for Impact 3.9-1, above, dewatering is anticipated during project construction. Construction-related dewatering would be short term and temporary and would not substantially decrease groundwater supplies or interfere with groundwater recharge. A dewatering plan, which would specify the maximum amount of water that may be pumped and discharged, would be submitted by the contractor and approved by EH&S and Facilities Services before the start of construction. As part of the project, UC Berkeley would implement CBP HYD-8, which requires dewatering to be monitored and maintained by qualified engineers in compliance with the Campus Design Standards and applicable regulations:

- **CBP HYD-8**: Dewatering, when needed, will be monitored and maintained by qualified engineers in compliance with the Campus Design Standards and applicable regulations.

As discussed in Section 3.9.2, "Environmental Setting," water would be supplied to the project site by EBMUD, which does not currently extract groundwater to meet the water demand in its service area. Because most of the East Bay Plain Subbasin does not have a substantial source of groundwater that can meet municipal supply demand, EBMUD does not anticipate using the groundwater subbasin for local water supplies in the future. Therefore, the project would not substantially decrease groundwater supplies during project operation.

Implementing the project would result in the development of approximately 7,000 square feet of pervious surfaces and approximately 74,000 square feet of impervious surfaces, representing an approximately 8.6-percent decrease in impervious surfaces compared to existing site conditions. As discussed for Impact 3.9-2, above, the project would incorporate low-impact development site design and BMPs to address postconstruction stormwater runoff to meet requirements specified in the Phase II Small MS4 Permit. These design features and BMPs would increase the pervious surface area for rainwater infiltration and increase the potential for groundwater recharge.

As part of the project, UC Berkeley would implement CBP HYD-7 to minimize impacts on groundwater recharge:

- **CBP HYD-7**: UC Berkeley will continue to review each development project, to determine whether rainwater infiltration to groundwater is affected. If it is determined that existing infiltration rates would be adversely affected, UC Berkeley will design and implement the necessary improvements to retain and infiltrate stormwater. Such improvements could include retention basins to collect and retain runoff, grassy swales, infiltration galleries, planter boxes, permeable pavement, or other retention methods. The goal of the improvement should be to ensure that there is no net decrease in the amount of water recharged to groundwater that serves as freshwater replenishment to Strawberry Creek. The improvement should maintain the volume of flows and times of concentration from any given site at pre-development conditions.

This CBP requires UC Berkeley to review the project to determine whether rainwater infiltration to groundwater is affected and include design features to retain and infiltrate stormwater so that no net decrease in groundwater recharge occurs. Examples of design features include retention basins, bioswales, infiltration galleries, planter boxes, and permeable pavement.

Compliance with the Phase II Small MS4 Permit and UC Berkeley Campus Design Standards and CBPs would ensure that implementing the project would increase the potential for groundwater recharge compared to existing conditions. Therefore, implementing the project would not substantially decrease groundwater supplies or interfere with groundwater recharge. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-4: The project would not substantially alter drainage patterns of the project site such that substantial erosion and siltation, on- or off-site flooding, polluted runoff, or an exceedance of the capacity of stormwater drainage systems would occur.

Projects that increase impervious surfaces have potential to increase stormwater runoff and peak discharges to drainage channels. Increased stormwater flows have the potential to exacerbate creekbank erosion or cause destabilizing channel incision in receiving waters. In addition, increases in stormwater flows have the potential to cause nuisance flooding in areas without adequate drainage facilities or exceed the capacity of existing or planned stormwater drainage systems.

As discussed for Impact 3.9-1, above, the project would be required to obtain coverage under the Construction General Permit, which includes requirements for the preparation and implementation of a project-specific SWPPP. The SWPPP would identify BMPs to control sediment, erosion, and contamination of runoff during construction. As described in Table 3.9-1, typical construction BMPs include using tarps and fiber rolls, installing storm drain inlet protection, applying water or other dust palliatives, and stabilizing truck entrances and exits. As discussed for Impact 3.9-1, above, UC Berkeley would implement CBP HYD-1 (submit project plans to EH&S for review), CBP HYD-2 (implement control measures and BMPs in the SWPPP), and CBP HYD-6 (incorporate recommendations of the Strawberry Creek Management Plan) during the construction phase. Compliance with the Construction General Permit and UC Berkeley CBPs would minimize the potential for construction activities involving alterations to drainage patterns to result in erosion, siltation, flooding, polluted runoff, and an exceedance of the capacity of existing stormwater drainage systems.

The project site is fully developed with several buildings and a surface parking lot. As discussed for Impact 3.9-2, implementing the project would result in an approximately 8.6-percent decrease in impervious surfaces at the project site, which would decrease the volume of stormwater runoff and peak discharges from existing conditions. Pervious surfaces would be provided in the courtyard, and stormwater runoff would be directed to the City of Berkeley's storm drain system. Project connections to existing City of Berkeley utilities are discussed in Section 3.15, "Utilities and Service Systems," of this Draft EIR.

The project would incorporate low-impact development site design and BMPs for stormwater management in accordance with the provisions of the Phase II Small MS4 Permit, which would be determined during final project design. As discussed for Impact 3.9-2, above, UC Berkeley would implement CBP HYD-1 (submit project plans to EH&S for review), CBP HYD-2 (implement postconstruction control measures and BMPs in accordance with permit requirements), CBP HYD-3 (use and dispose of laboratory chemicals in accordance with UC Berkeley procedures), CBP HYD-4 (design parking areas to be covered), CBP HYD-5 (minimize the extent of impervious surfaces in project design), and CBP HYD-6 (incorporate recommendations of the Strawberry Creek Management Plan) to minimize the potential for alterations to drainage patterns to result in erosion and sedimentation. In addition, UC Berkeley would implement CBP HYD-10 and CBP HYD-13 to manage runoff:

- **CBP HYD-10**: For projects in the City Environs Properties that affect drainage systems or patterns, improvements will be coordinated with the City of Berkeley's Public Works Department.
- **CBP HYD-13**: UC Berkeley will continue to manage runoff into storm drain systems such that the aggregate effect of projects implemented pursuant to the LRDP creates no net increase in runoff over existing conditions.

Because the project would result in a decrease in the extent of impervious surfaces at the project site, the project would not contribute to increases in stormwater runoff volumes or peak-flow rates and would not increase the stormwater runoff to the City of Berkeley's storm drain system.

Based on the above discussion, project construction and operation would not substantially alter existing drainage patterns in a manner that would result in substantial erosion or siltation or increase surface runoff in a manner that would result in flooding, exceed the capacity of stormwater drainage systems, or provide substantial additional sources of polluted runoff. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

As described for Impacts 3.9-1 and 3.9-2, the project would be required to comply with the Construction General Permit and Phase II Small MS4 Permit. Construction and postconstruction control measures and BMPs would be implemented to control and prevent the release of sediment, debris, and other pollutants into the storm drain system. Implementation of BMPs during construction would be in accordance with the provisions of the SWPPP, which would minimize the release of sediment, soil, and other pollutants. Postconstruction BMPs would be required to meet the provisions of the Phase II Small MS4 Permit, which include the incorporation of source control, site design, and treatment control measures in new development projects to address stormwater runoff pollutant discharges and prevent increases in runoff flows from new development. Adherence to the Construction General Permit, the Phase II Small MS4 Permit, and UC Berkeley policies and CBPs would ensure that surface water and groundwater quality are not adversely affected during construction and operation of the project. As a result, the project would not obstruct or conflict with the implementation of the San Francisco Bay RWQCB Basin Plan.

As discussed for Impact 3.9-3, the project is within the EBMUD service area, which relies solely on surface water supply. Groundwater is not currently used as a municipal water supply source, and the northern portion of the East Bay Plain Subbasin, where the project site is situated, does not have groundwater yield sufficient to be used as a future groundwater supply source. Although dewatering is anticipated dur8ing project construction, the removal of groundwater would be temporary, short term, and subject to the maximum limits specified in the dewatering plan. Therefore, the project would not interfere with the sustainable management of the groundwater basin and would not conflict with or obstruct implementation of the East Bay Plain Subbasin GSP.

Based on the above discussion, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.10 LAND USE AND PLANNING

This land use and planning analysis evaluates the consistency of the project with applicable land use plans and policies. The physical environmental effects associated with the project, many of which pertain to issues of land use compatibility (e.g., noise, aesthetics, air quality), are evaluated in other sections of Chapter 3 of this Draft EIR.

No comments related to land use and planning were received in response to the notice of preparation (NOP). The NOP and scoping comments received are included in Appendix A.

3.10.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to land use are applicable to the project.

STATE

No state plans, policies, regulations, or laws related to land use are applicable to the project.

UNIVERSITY OF CALIFORNIA

UC Berkeley 2021 Long Range Development Plan

Each campus in the UC system periodically prepares a long range development plan (LRDP), which provides a high-level planning framework to guide land use and capital investment in line with its mission, priorities, strategic goals, and enrollment projections. The purpose of an LRDP is to provide adequate planning capacity for potential population growth and physical infrastructure that may be needed to support future population levels on each campus. The LRDP does not mandate growth or the provision of new facilities. The UC Berkeley LRDP was updated in 2021 (UC Berkeley 2021a).

The following 2021 LRDP goals are applicable to the project:

- Goal 2.1: Provide adaptable and flexible academic and research space to meet UC Berkeley's physical space needs in support of its mission and Strategic Plan.
- Goal 2.2: Site academic and research facilities to foster interdisciplinary collaboration and provide indoor and outdoor places for interaction.
- Goal 4.1: Adapt campus landscapes to improve environmental health, enhance ecology and biodiversity, and create educational and research opportunities.
- Goal 4.2: Upgrade and modernize buildings and infrastructure to address deferred maintenance and support new development. Meet and strive to exceed UC System and UC Berkeley policies and goals for sustainability, resilience, and seismic safety.
- Goal 4.3: Implement strategies that enhance campus resilience, to protect human health and safety, maintain essential infrastructure services and operational continuity, preserve investment in the physical campus, and cultivate adaptable natural systems.
- Goal 5.1: Ensure the highest and best use of campus land to serve UC Berkeley's mission.

The following 2021 LRDP campuswide land use objectives are applicable to the project:

- Make the highest and best use of each site to employ limited land resources most efficiently. To the extent possible, prioritize utilization of infill or undeveloped sites for facility development to accommodate program needs, taking into consideration site setting and context, adjacent uses, and coordination with existing landscape, infrastructure, and mobility systems.

Consider redevelopment of underutilized sites, such as surface parking lots and lower density buildings, when existing buildings or uses do not meet current needs; when they do not maximize a site's development potential; or when building systems are reaching the end of their useful life and redevelopment is preferable to renovation.

- Consider demolition of certain buildings, particularly buildings that do not meet current or future program needs, and that have significant deferred maintenance needs or that require seismic remediation, through evaluation of options to reuse the site. The intention of demolition is to provide opportunity for development of new campus buildings or open spaces that meet UC Berkeley's programmatic objectives.

The following 2021 LRDP City Environs land use objectives are applicable to the project:

- Prioritize sites adjacent to the Campus Park for uses that would benefit from connectivity to Campus Park academic, research and student life uses, but may be more public-facing or administrative functions.
- Complement and reinforce surrounding land use patterns to the extent possible, including leveraging available transportation resources such as the Downtown Berkeley BART station when locating uses that benefit from proximity to regional transit, such as administrative functions, and public attractions, including but not limited to museums, concert halls, athletics and recreation facilities, and other event venues.
- Consider City of Berkeley plans such as the Downtown Area Plan and the Southside Plan to the extent feasible in the planning and development of university properties within the City Environs, to support the vitality of surrounding neighborhoods.

UC Berkeley Physical Design Framework

UC Berkeley's Physical Design Framework describes the approach to physical planning and development for the campus, including design strategies to guide capital projects. The Physical Design Framework consists of two design strategies for campus structures in the City Environs land use zone (UC Berkeley 2021b):

- **Strategy CE-1:** Maintain a consistent campus image across all campus sites.
  - Develop a consistent campus image and character through capital projects' public realm elements, such as building aesthetics, landscape and open space, and other site improvements.
- **Strategy CE-2:** Respond to surrounding context and consider new facilities within the context of the campus as a whole.
  - Complement and contribute to the character of the existing context and public realm to the greatest extent feasible, while accommodating University program needs.
  - Acknowledge and consider the City of Berkeley's adopted plans, design guidelines, and other regulatory context for development in the City Environs, to the greatest extent feasible.
  - Strengthen overall campus cohesiveness by improving physical and programmatic connectivity between individual sites in the City Environs and the Campus Park.

REGIONAL

Plan Bay Area

Plan Bay Area is a long-range regional plan jointly developed and adopted by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) every 4 years. The latest version of the plan, Plan Bay Area 2050, was adopted in 2021 by MTC and ABAG. Although prior iterations of Plan Bay Area focused on transportation and housing, Plan Bay Area 2050 includes strategies for long-term economic development and environmental resilience while meeting all federal and state requirements. Plan Bay Area 2050 identifies 35 strategies. These strategies are public policies or investments that can be implemented in the Bay Area at the city, county, regional, or state level. MTC and ABAG are currently developing the next long-range plan, Plan Bay Area 2050+, which is a limited and focused update that builds on the foundation of Plan Bay Area 2050.

In 2008, MTC/ABAG initiated a regional effort (FOCUS) to link local planned development with regional land use and transportation planning objectives. Through this initiative, local governments identified Priority Development Areas (PDAs) and Transit Priority Areas (TPAs). The PDAs and TPAs form the implementing framework for Plan Bay Area. PDAs are areas along transportation corridors that are served by public transit and that allow opportunities for development of transit-oriented, infill development in communities expected to host most of the future development. TPAs are similar in that they are formed one-half mile around a major transit stop, such as a transit center or rail line. The project site is located in a PDA and a TPA. (See Figure 2-3 in Chapter 2, "Project Description.")

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. As discussed below, UC Berkeley has committed to review and consider the City of Berkeley's adopted planning and zoning documents for projects located within the Downtown Area Plan or the Southside Area Plan. The following local plans and policies have been reviewed for the project. Because UC Berkeley is exempt from local land use regulations whenever using property under its control in furtherance of its educational mission, project inconsistency with local plans, policies or regulations is not considered a significant impact under CEQA.

Settlement Agreement with City of Berkeley

As part of its 2021 settlement agreement with the City of Berkeley, UC Berkeley has committed to review and consider the City of Berkeley's adopted planning and zoning documents when locating University facilities off of the Campus Park and, for projects located within the Downtown Area Plan or the Southside Area Plan, to consider the design guidelines and standards contained within those plans, as applicable, when designing projects in those respective plan areas to the extent they are consistent with the program for the building. UC Berkeley also agreed to submit its capital projects located in the City Environs land use zone with an anticipated value of more than $5 million to the City's Planning Director and will either incorporate the City Planning Director's comments into such capital project, or explain in writing its decision not to do so. In addition, UC Berkeley will also submit such projects to the City's 4x6 City/Student/UC Committee so that the committee may provide comments regarding such projects. If UC Berkeley determines it will not implement such projects consistent with the City's adopted planning and zoning documents, upon the City's Planning Director's request, UC Berkeley will provide a written explanation of the reasons for such a decision.

The following discussion concerning the project's consistency with local plans, zoning standards, and design guidelines is included for informational purposes only. Consistent with the terms of the settlement agreement, UC Berkeley and the City of Berkeley established a Collaborative Planning Framework and process to standardize the approach to reviewing these UC projects' consistency with local plans, standards, and guidelines. The Collaborative Planning Framework outlines opportunities for the City to provide input on UC projects, as well as a timeline for UC Berkeley to respond to concerns and document potential inconsistencies with local plans or policies before project approval. The project's consistency with the following City of Berkeley General Plan and Berkeley Downtown Area Plan is discussed below.

The following City of Berkeley General Plan polices are relevant to the project:

- **Policy LU-3: Infill Development.** Encourage infill development that is architecturally and environmentally sensitive, embodies principles of sustainable planning and construction, and is compatible with neighboring land uses and architectural design and scale.
- **Policy LU-15: Service and Institutional Use Locations.** Wherever possible, locate public and private institutional uses and community service centers that serve the city residents or have a regional-service orientation on transit corridors so that they are accessible to public transportation and will not disrupt adjacent residential areas.

The following Berkeley Downtown Area Plan polices are relevant to the project:

- **Policy ED-4.1: Guiding and Cooperating with UC Berkeley.** Provide guidance to the University regarding actions that it can take regarding the Downtown Area Plan, and cooperate with the University in carrying out the Plan.

  a) Work with the University to develop a summary of UC-related policies and implementing actions contained in the DAP. Review this summary regularly, and consider ways to implement the DAP more effectively.

  b) Work toward the timely adoption of Zoning provisions and Downtown Design Guideline amendments in order to further guide UC development initiatives in the Downtown Area.
- **Policy ES-3.1: Land Use.** Encourage development with high intensities close to transit, and encourage a mix of uses that allows most needs to be met on foot.
- **Policy ES-3.3: Urban Design.** Encourage exceptional, high-quality new architecture, and minimize noise, wind, glare, and other impacts from development.
- **Policy LU-1.1: Downtown Uses.** Encourage uses that allow people who live, work and learn in Downtown to meet daily needs on foot.
- **Policy LU-1.5: Downtown Intensities & Building Heights.** To advance Downtown as a vibrant city center and encourage car-free options near transit, accommodate urban intensities by using building heights that are appropriate and feasible, as indicated in Table LU-1 and "Figure LU-1, Land Use & Building Heights." All new buildings shall deliver significant public benefits, many of which should be in proportion to building height (see Policy LU-2.1). Buildings exceeding a height of 85 feet shall be subject to shadow studies and visual analysis, – and buildings exceeding a height of 120 feet shall be subject to wind analysis – to avoid detriment to residential areas, public streets and public open spaces, and if necessary require modifications to the project design including setbacks and stepbacks to reduce view and shadow impacts (see policies under Goals ES-4, LU-2, and HD-1, as well as footnotes in Table LU-1). Provide appropriate transitions to Residential areas that surround Downtown as described in Policies LU-4.2.
- **Policy LU-4.1: Transit-Oriented Development.** Encourage use of transit and help reduce regional greenhouse gas emissions, by allowing buildings of the highest appropriate intensity and height near BART and along the Shattuck and University Avenue transit corridors (see Goal ES-3).
- **Policy LU-4.2: Development Compatibility.** Encourage compatible relationships between new and historic buildings, and reduce localized impacts from new buildings to acceptable levels. The size and placement of new buildings should: reduce street-level shadow, view, and wind impacts to acceptable levels; and maintain compatible relationships with historic resources (such as streetwall continuity in commercial areas). See policies under Goals ES-4 and HD-1, and Policy LU-1.5.
- **Policy LU-7.2: Transitions.** Avoid abrupt transitions between residential-only neighborhoods and development projects built in Corridor and Buffer areas.
- **Policy OS-2.5: Water Conservation.** New landscaping and retrofits should incorporate effective water conservation and water reuse features.

The project would further several City of Berkeley General Plan and Berkeley Downtown Area Plan policies related to minimizing or mitigating environmental effects. Specifically, the project would further General Plan Policy LU-3 to encourage infill development and Policy LU-15 to locate institutional uses on transit corridors, as well as Downtown Area Plan Policy ES-3.1 to locate development close to transit, Policy LU-1.1 to encourage people who work Downtown to meet daily needs on foot, and Policy LU-4.1 to locate development near BART and transit corridors. The project would be located in Downtown Berkeley surrounded by the UC Berkeley campus and mixed-use development, which would be consistent with Downtown Berkeley Plan Policy LU-7.2 to avoid abrupt transitions between residential-only neighborhoods and proposed development. The project would include drought tolerant landscaping plants consistent with Policy OS-2.5 to incorporate water conservation features. The project would increase the density of an existing UC-owned and developed property located less than 500 feet from Downtown Berkeley BART and several high-capacity AC Transit bus routes; would provide public serving ground floor retail spaces; and include a publicly accessible open space between the new buildings in alignment with the Downtown Berkeley Streets and Open Space Improvement Plan. Changes to the public right-of-way would be coordinated with the City of Berkeley Public Works; however, no changes to circulation are proposed and improvements would be designed to enhance the pedestrian experience and safety along the project frontage. By implementing the UC Policy on Sustainable Practices, the project would be consistent with or exceed the City's green building requirements, including prohibitions on natural gas, exceeding LEED Gold, providing infrastructure to support solar photovoltaics, use of low carbon concrete, waste diversion, electric vehicle parking ratios, and water usage requirements.

Consistent with the Downtown Area Plan Policy ED-4.1 related to guiding and cooperating with UC Berkeley in Downtown Berkeley, the project was introduced and discussed with City staff through the Collaborative Planning Framework developed in response to the settlement agreement. This process provided opportunities for City staff and its commissions (Design Review Committee (DRC) and Landmarks Preservation Commission (LPC)) to comment and offer input to the project related to adopted City plans, policies, and standards. The project would be generally consistent with the City's land use, open space, transportation, and sustainable development plans and policies; however, the project would likely exceed the specific local zoning standards for height and involve the demolition of local historic landmark structures. Consistent with 2021 LRDP EIR and City of Berkeley guidelines (Downtown Area Plan Policies LU-1.5 and LU-4.2), UC Berkeley would prepare wind and shadow studies for the project to evaluate the potential effects of height on the local area, as well as discuss the project with the City's LPC and prepare Historic American Buildings Survey (HABS) documentation before the demolition of the local historic resources. Before implementing the project, UC Berkeley would present building designs to the DRC, with participation in these meetings to include City staff, in order to solicit input on building design (Policy ES-3.3).

University Avenue Strategic Plan

The University Avenue Strategic Plan is intended to guide development along University Avenue, one of the main roadways in the City of Berkeley (City of Berkeley 1996). The project site is bounded by University Avenue to the north in the Downtown Node identified in the Strategic Plan. The guiding policy for land use in the University Avenue Strategic Plan is to strengthen University Avenue as a mixed-use residential and commercial boulevard, concentrate urban high-density and mixed-use commercial and housing development in the nodes along the avenue, encourage lower-density mixed use outside the nodes, and protect and enhance the lower-density character of surrounding neighborhoods.

3.10.2 Environmental Setting

The project site is located in the Downtown Berkeley area in the UC Berkeley City Environs land use zone west of the Campus Park (Figure 2-1). Downtown Berkeley serves as the City's primary civic, office, entertainment, and retail center. Existing uses on the project site include UC Berkeley's University Hall, surface parking, and commercial rental space.

As described above, UC Berkeley is not subject to local zoning and general plan policies, but for informational purposes, the project site is zoned "C-DMU Core" (Downtown Mixed-Use) and is designated as Downtown in the City of Berkeley General Plan. The Downtown land use designation is characterized by high-density commercial, office, arts, culture, entertainment, and residential development, with allowable uses including medium- and high-density housing, regional- and local-serving arts, entertainment, retail, office, cultural, open space, civic uses, and institutional uses and facilities (City of Berkeley 2002, 2012). The existing uses of the project site (e.g., commercial and institutional uses) match the Downtown land use designation.

Per the City of Berkeley General Plan, the land uses surrounding the project site are designated Downtown to the north (UC Berkeley's Anchor House), Institutional and Open Space to the east (UC Berkeley's Campus Park), Downtown to the south (Berkeley Art Museum and Pacific Film Archive), and Downtown to the west. The surrounding vicinity includes a mix of Avenue Commercial, Medium-Density Residential, and High-Density Residential land uses to the north; Downtown land uses to the south; and Medium-Density Residential land uses to the west (UC Berkeley 2021c).

3.10.3 Impact Analysis and Mitigation Measures

METHODOLOGY

Evaluation of potential land use and planning impacts is based on a review of documents pertaining to the project site and potential compatibility of the project with existing and planned land uses near the site. Applicable planning documents and land use plans were reviewed to determine whether implementation of the project would conflict with any plans adopted for the purpose of avoiding or mitigating an environmental effect.

THRESHOLDS OF SIGNIFICANCE

A land use and planning impact would be significant if implementation of the project would:

- physically divide an established community; or
- cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

ISSUES NOT DISCUSSED FURTHER

Physical Division of an Established Community

The project site is entirely developed with approximately 200,000 square feet of buildings and surface parking lots/paved areas occupying more than half a block in Downtown Berkeley. The project would involve removal of all buildings and redevelopment of the site with two new buildings. Because the project would be constructed and operated within the boundaries of the existing site, no aspect of the project would physically divide a community, and no impact would occur. This issue is not discussed further.

IMPACT ANALYSIS

Impact 3.10-1: The project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

UC Berkeley's 2021 LRDP is the primary land use planning document for the UC Berkeley campus. The project would involve construction and operation of two laboratory buildings that also contain academic and administrative space and a parking garage on UC Berkeley property in support of the goals identified in the 2021 LRDP. For example, Goal 2.1 of the 2021 LRDP is to provide adaptable and flexible academic and research space to meet UC Berkeley's physical space needs in support of its mission and Strategic Plan. Goal 2.2 is to site academic and research facilities to foster interdisciplinary collaboration and provide indoor and outdoor places for interaction, and Goal 5.1 is to ensure the highest and best use of campus land to serve UC Berkeley's mission. The project would be consistent with these 2021 LRDP campuswide land use goals to prioritize use of infill or underdeveloped sites with new facilities to accommodate program needs and provide opportunity for development of new campus buildings that meet UC Berkeley's programmatic objectives. Furthermore, the project site is located in both a PDA and a TPA and is approximately 625 feet from the Downtown Berkeley Bay Area Rapid Transit (BART) station. As a result, the project's location would be consistent with the 2021 LRDP City Environs land use objective to locate uses that benefit from proximity to regional transit and would be consistent with the Plan Bay Area implementing framework to locate growth in PDAs and TPAs. The project would also be consistent with the UC Berkeley's Physical Design Framework Strategy CE-2 to strengthen overall campus cohesiveness by improving physical and programmatic connectivity between individual sites in the City Environs land use zone and the Campus Park. The project would be required to undergo UC Berkeley's review process to ensure compliance with relevant land use policies and goals. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.11 NOISE AND VIBRATION

This section includes a summary of applicable regulations related to noise and vibration, a description of ambient-noise conditions, and an analysis of potential short-term construction and long-term operational-source noise impacts associated with the project. Mitigation measures are recommended as necessary to reduce significant noise impacts. Additional data is provided in Appendix H.

No comments related to noise and vibration were received during the notice of preparation (NOP) public review period. The NOP and scoping comments received are included in Appendix A.

3.11.1 Common Terminology

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors used throughout this section.

- **Equivalent Continuous Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period.
- **Percentile-Exceeded Sound Level (L_X):** L_X represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time) (Caltrans 2013: 2-16).
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013 :2-48; FTA 2018:207–208).
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB “penalty” applied to sound levels occurring during nighttime hours between 10:00 p.m. and 7:00 a.m. (Caltrans 2013: 2-48; FTA 2018: 214).
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn} with an additional penalty of 4.77 dBA (A-weighted decibels), for the hours 7 p.m. to 10 p.m., which are usually reserved for relaxation, television, reading, and conversation (Caltrans 2013: 2-48).

3.11.2 Acoustic Fundamentals

Prior to discussing the noise setting for the project, background information about sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms referenced throughout this section.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source, also called the sound pressure level (SPL). SPL is most commonly described by using decibels (dB) because this logarithmic unit best corresponds to the way the human ear interprets sound pressures.

Addition of Decibels

Because decibels are logarithmic units, SPLs expressed in dB cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels) can be computed based on this information.

The A-weighting approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. Table 3.11-1 describes typical A-weighted noise levels for various noise sources.

Table 3.11-1 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, garbage disposal at 3 feet
Noisy urban area in daytime, gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, normal speech at 3 feet
Commercial area, heavy traffic at 300 feet	— 60 —	
Quiet urban area in daytime	— 50 —	Large business office, dishwasher next room
Quiet urban area in nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban area in nighttime	— 30 —	Library, bedroom at night
Quiet rural area in nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Notes: dB = decibels

Source: Caltrans 2013: Table 2-5.

Human Response to Changes in Noise Levels

As described above, the doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013: 2-44). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013: 2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

Ground Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Ground-borne vibration is vibration of and through the ground. Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads.

Ground vibration levels generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the factors described below.

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Noise from a line source (e.g., road) propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave–canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Other factors such as air temperature, humidity, and turbulence can also affect sound attenuation.

<u>Shielding by Natural or Human-Made Features</u>

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013: 2-35; FTA 2018: 42). Barriers higher than the line of sight provide increased noise reduction (FTA 2018: 16). Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation of sufficient height (FTA 2018: 15, 104, 106).

3.11.3 Regulatory Setting

FEDERAL

US Environmental Protection Agency Office of Noise Abatement and Control

The US Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. Documents and research completed by the EPA Office of Noise Abatement and Control also provide value in the analysis of noise effects.

Federal Transit Administration

The Federal Transit Administration (FTA) Division of Environmental Analysis developed the Transit Noise and Vibration Impact Assessment Manual, which provides guidance to engineers, planners, and consultants in assessing vibration from construction, operation, and maintenance of projects. To address the human response to ground vibration, the FTA has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 3.11-2. In addition, FTA has also established construction vibration damage criteria, shown below in Table 3.11-3.

Table 3.11-2 Ground-Borne Vibration Impact Criteria for General Assessment for Human Response

Land Use Category	Ground-Borne Vibration Impact Levels for Human-Response (VdB re 1 microinch/second) Frequent Events[1]	Ground-Borne Vibration Impact Levels for Human-Response (VdB re 1 microinch/second) Occasional Events[2]	Ground-Borne Vibration Impact Levels for Human-Response (VdB re 1 microinch/second) Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65[4]	65[4]	65[4]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes: VdB re 1 microinch/second = vibration decibels referenced to 1 microinch/second and based on the root mean square (RMS) velocity amplitude.

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day.

[2] "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[3] "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

[4] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018: 123-126.

Table 3.11-3 FTA Construction Damage Vibration Criteria

Land Use Category	PPV, in/sec
Reinforced-concrete, steel or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.

In addition to vibration criteria, FTA has also established construction noise criteria based on the land use type affected by noise and depending on whether construction noise would occur during the daytime or nighttime. The criteria are as follows (FTA 2018: 179):

- Residential: 90 dBA L_{eq} (daytime) and 80 dBA L_{eq} (nighttime).
- Commercial/Industrial: 100 dBA L_{eq} (daytime and nighttime).

STATE

California Green Building Standards

The State of California's noise insulation standards for non-residential uses are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards Code (CALGreen). CALGreen noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Proposed projects may use either the prescriptive method (Section 5.507.4.1) or the performance method (5.507.4.2) to show compliance.

- **Section 5.507.4.1 Prescriptive Method:** Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC [Outdoor/Indoor Transmission Class] rating of noise less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:
  1. Within the 65 CNEL or L_{dn} noise contour of an airport
  2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed guideway sources as determined by the Noise Element of the General Plan.
- **Section 5.507.4.2 Performance method:** For buildings located as defined in Section 5.07.4.1 or 5.507.4.1.1, wall and roof ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level 50 dBA $L_{eq(1hr)}$ in occupied areas during any hour of operation.

UNIVERSITY OF CALIFORNIA

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to make lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance. The Campus Design Standards contain construction specifications to guide design and ensure that new construction and renovation projects at UC Berkeley use continuing best practices (CBPs), which are discussed below, and are integrated with the existing campus. They are administered by the Campus Building Department and apply to all construction projects sponsored by UC Berkeley. The Campus Design Standards include the following requirements related to noise (UC Berkeley 2020):

- Section 01 14 00: Work Restrictions:
  - The work of this project shall be accomplished in accordance with the City of Berkeley's Construction Noise Standards (see Local regulations below).
  - No work shall be performed on Saturdays, Sundays, or University holidays, unless otherwise approved by the Owner's Representative, in consultation with the Campus Building Department.
  - Work occurring during Reading, Review, and Recitation (RRR) or Finals Weeks shall not start before 9:00 a.m. unless otherwise approved in advance. Consult the Academic Calendar when scheduling work.
  - All roto-hammering, chipping, doweling, pneumatic fastening, or any other activity that may cause excessive noise and/or vibration in central campus environs or occurring near residences shall be performed in a manner that causes the least possible disturbance to campus activities or residents.
  - Contractor shall provide an Access Interruption 12 working days (modify as appropriate) prior to the proposed work date for any work that will reduce or alter access to buildings or portions of buildings, pathways, roadways, or sidewalks.
  - All crane work shall be scheduled to cause the least possible disruption to the campus and surrounding environs.
  - Alterations to the above contract requirements may be made in advance, with the written permission of the Campus Building Official or Campus Architect.
- Section 01 56 19 Temporary Noise Barriers: The following noise control procedures shall be employed (these requirements may be modified for projects as required by Environment Impact Report Mitigation Measures where needed):
  - Maximum Noise: The contractor shall use equipment and methods during the course of this work that are least disruptive to adjacent buildings, offices, or residences. Note: modify the following, if necessary, for EIR Mitigation Measures (if any). Noise levels for trenchers, graders, trucks, and pile drivers shall not exceed 90 dBA at 50 feet as measured under the noisiest operating conditions. For all other equipment, noise levels shall not exceed 85 dBA at 50 feet.
  - Equipment: Jack hammers shall be equipped with exhaust mufflers and steel muffling sleeves. All diesel equipment shall have exhaust muffled. Air compressors shall be of a quiet type such as a "whisperized" compressor.
  - Operations: Machines shall not be left idling. Electric power shall be used in lieu of internal combustion engine power wherever possible. Equipment shall be maintained to reduce noise from vibration, faulty mufflers, or other sources.
  - Scheduling: Noisy operations shall be scheduled so as to minimize their disturbance to occupied adjacent areas and duration at any given location.

UC Berkeley Continuing Best Practices

UC Berkeley applies CBPs relevant to noise as part of the project approval process. CBPs that would be implemented as part of the project are identified in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts in Section 3.11.3 "Impact Analysis and Mitigation Measures." A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. Therefore, UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local policy or regulation as a threshold or standard of significance. Because UC Berkeley has not established its own noise standards, UC Berkeley uses noise standards from the City of Berkeley's Municipal Code for evaluation of project impacts related to noise. The City of Berkeley noise standards are therefore described below and are used when appropriate in this analysis as thresholds of significance to determine impact significance.

City of Berkeley Municipal Code

Stationary noise sources in Berkeley are regulated by Municipal Code Section 13.40.050, Exterior Noise Standards. The City of Berkeley's exterior noise limits are based on zoning and time of day and are summarized in Table 3.11-4.

Table 3.11-4 Exterior Noise Standards for Residential Land Uses, dBA

Zoning District	Time Period	L_{50}	L_{25}	L_8	L_2
Single-family, restricted two-family, limited two-family, restricted multiple family, and environmental safety residential	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 45	60 50	65 55	70 60
Multi-family and high-density residential	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55	65 60	70 65	75 70

Notes: dBA = A-weighted decibels
Notes: If the measured ambient noise level is greater than the level permissible within any of the noise limit categories above, the sound level when measured on any other property shall not exceed:
The ambient noise level for a cumulative period of more than 30 minutes in any hour (L_{50}); or
The ambient noise level plus 5 dBA for a cumulative period of more than 15 minutes in any hour (L_{25}); or
The ambient noise level plus 10 dBA for a cumulative period of more than 5 minutes in any hour (L_8); or
The ambient noise level plus 15 dBA for a cumulative period of more than 1 minute in any hour (L_2); or
The ambient noise level plus 20 dBA for any period of time (L_{max}).

Source: City of Berkeley 2023.

Section 13.40.070, Prohibited Acts, describes various restricted or entirely prohibited activities that generate undesired noise. Applicable prohibited acts are as follows:

- Loading Docks: Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, or similar objects between the hours of 10:00 p.m. and 7:00 a.m. such that the sound therefrom across a residential real property line violates Section 13.40.050 or 13.40.060.
- Construction/Demolition: Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work before 7:00 a.m. on a weekday (or before 9:00 a.m. on a weekend or holiday) or after 7:00 p.m. on a weekday (or after 8:00 p.m. on a weekend or holiday) such that the sound therefrom across a residential or commercial real property line violates Section 13.40.050 or 13.40.060, except for emergency work of public service utilities or by variance issued by the [Environmental Health Division]. (This section shall not apply to the use of domestic power tools as specified in subsection B.11 of Section 13.40.070.)
- Noise Restrictions at Affected Properties: Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum sound levels at affected properties will not exceed those listed in the following schedules [presented as Table 3.11-5 and 3.11-6 in this EIR]:

Table 3.11-5 Maximum Sound Levels for Nonscheduled, Intermittent, Short-Term Operation of Mobile Equipment at Residential Land Uses

	Maximum Allowable Noise Level at Single-Family and Limited Two-Family Residential Land Uses (L_{max} dBA)	Maximum Allowable Noise Level at Multi-Family Residential Land Uses (L_{max} dBA)
Weekdays 7:00 a.m. to 7:00 p.m.	75	80
Weekends and legal holidays 9:00 a.m. to 8:00 p.m.	60	65

Notes: dBA = A-weighted decibels
L_{max} = maximum sound level
Short-term is defined as lasting less than 10 days.
Source: City of Berkeley 2023:44.

Table 3.11-6 Maximum Sound Levels for Repetitively Scheduled and Relatively Long-Term Operation of Stationary Equipment at Residential Land Uses

	Maximum Allowable Noise Level at R-1 and R-2 Residential Land Uses (L_{max} dBA)	Maximum Allowable Noise Level at R-3 and above Multi-Family Residential Land Uses (L_{max} dBA)
Weekdays 7:00 a.m. to 7:00 p.m.	60	65
Weekends and legal holidays 9:00 a.m. to 8:00 p.m.	50	55

Notes: dBA = A-weighted decibels
L_{max} = maximum sound level
Long-term is defined as lasting a period of 10 days or more.
Source: City of Berkeley 2023:44.

Vibration

Section 13.40.070.B.8 of the Municipal Code prohibits operating or permitting the operation of any device that creates a vibration, that annoys or disturbs at least two or more reasonable persons of normal sensitiveness who reside in separate residences (including apartments and condominiums) at or beyond the property boundary of the source, if on private property, or at least 150 feet (46 meters) from the source, if on a public space or public right-of-way.

3.11.4 Environmental Setting

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-Sensitive Land Uses

Noise-sensitive land uses are generally considered those where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

The nearest noise-sensitive receptors within 500 feet of the project site are residential dwellings (including student housing), academic buildings, labs, and classrooms and a City of Berkeley Landmark building. Table 3.11-7 shows a matrix of which receptors are considered noise- and/or vibration-sensitive. Figure 3.11-1 illustrates the locations of the nearest noise receptors to the project site.

Table 3.11-7 Sensitive Receptors Near the Project Site

Sensitive Receptor ID	Sensitive Receptor	Land Use	Direction	Sensitive Receptor Type	Distance to Project Boundary
SR 1	Modera Acheson Commons	Residential/Apartments	North	Noise and Vibration	100 feet
SR 2	Anchor House	Residential	North	Noise and Vibration	100 feet
SR 3	Helen Wills Neuroscience Institute	Laboratories	Northeast	Vibration	335 feet
SR 4	Li Ka Shing Center for Biomedical and Health Sciences	Laboratories	East	Vibration	300 feet

Sensitive Receptor ID	Sensitive Receptor	Land Use	Direction	Sensitive Receptor Type	Distance to Project Boundary
SR 5	UC Berkeley West Crescent Lawn	Park/Recreational	East	Noise	100 feet
SR 6	WeWork	Office Building	West	Vibration	5 feet
SR 7	Rise Berkeley	Residential/Apartments	West	Noise and Vibration	50 feet
SR 8	Heywood Apartments	Residential/Historical Landmark	West	Noise and Vibration	5 – 100 feet
SR 9	Residence Inn by Marriott Berkeley	Hotel	South	Noise and Vibration	200 feet
SR 10	Berkeley Art Museum	Museum	South	Vibration	85 feet

Existing Noise Sources and Ambient Levels

The existing noise environment within the project site vicinity is primarily characterized by vehicular traffic on the adjacent roadway network. The noise contours used for the UC Berkeley Long Range Development Plan (LRDP) EIR provide noise levels that characterize the existing noise environment in the project vicinity (UC Berkeley 2021). Table 3.11-8 shows select roadway segments (taken from the UC Berkeley 2021 LRDP EIR) in the project vicinity and the modeled existing noise levels.

Table 3.11-8 Summary of Existing (2020) Traffic Noise Levels

Roadway Segment	Existing (2020) ADT	Existing L_{dn} (dBA) at 50 feet	Distance to L_{dn}, Contour in feet		
			60 dBA	65 dBA	70 dBA
Addison Street, Shattuck Avenue to Oxford Street	1,870	55.0	26	12	6
Oxford Street, north of University Avenue	16,410	67.7	179	83	39
Shattuck Avenue, University Avenue to Addison Street	18,180	64.6	111	52	24
University Avenue, Shattuck Avenue to Oxford Street	8,020	64.8	115	53	25

Notes: dBA = A-weighted decibel; L_{dn} = day-night sound level

Source: UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #1 Draft EIR.

Sources: Data provided by UC Berkeley in 2023; adapted by Ascent in 2023.

Figure 3.11-1 Noise-Sensitive Receptors

3.11.5 Impact Analysis and Mitigation Measures

METHODOLOGY

Construction Noise and Vibration

To assess potential short-term (construction-related) noise and vibration impacts associated with implementation of the project, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's Guide on Transit Noise and Vibration Impact Assessment methodology (FTA 2018) and FHWA's Roadway Construction Noise Model User's Guide (FHWA 2006). Reference noise levels for specific equipment or activity types are well documented and the usage thereof is common practice in the field of acoustics.

Operational Noise and Vibration

With respect to non-transportation noise sources (e.g., stationary) associated with project implementation, the assessment of long-term (operational-related) impacts was based on reference noise emission levels and measured noise levels for activities and equipment associated with project operation (e.g., heating, ventilation, and air conditioning [HVAC] units), and standard attenuation rates and modeling techniques.

To assess potential long-term (operational-related) noise impacts due to project-generated increases in traffic, noise levels were estimated using calculations consistent with the FHWA Traffic Noise Model Version 2.5 (FHWA 2004) and project-specific traffic data (Appendix H). The analysis is based on the reference noise emission levels for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. Note that the modeling conducted does not account for any natural or human-made shielding (e.g., the presence of walls or buildings) or reflection off building surfaces.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the State CEQA Guidelines, the project would result in a significant noise or vibration impact if it would:

- generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- generate excessive groundborne vibration or groundborne noise levels; or
- for a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport of public use airport, expose people residing or working in the project area to excessive noise levels.

Construction Noise

A temporary construction noise impact would occur if the project exposes residential land uses in the City of Berkeley to noise levels that exceed the City of Berkeley's Maximum (L_{max}) Sound Levels for Nonscheduled, Intermittent, Short-Term Operation of Mobile Equipment at Residential Land Uses (as shown in Table 3.11-5) or Maximum Sound Levels for Repetitively Scheduled and Relatively Long-Term Operation of Stationary Equipment at Residential Land Uses (as shown in Table 3.11-6).

Vibration Annoyance

The City of Berkeley prohibits vibration that annoys or disturbs people of "normal sensitiveness." The FTA provides criteria for acceptable levels of groundborne vibration based on typical human response. For the purposes of this EIR, the FTA criterion of 72 vibration decibels (VdB) is used as a threshold for potentially annoying groundborne vibration.

Vibration impacts near buildings containing sensitive equipment (such as laboratories with optical microscopes) are evaluated with a lower threshold of 65 VdB.

Vibration Damage

The City of Berkeley does not have numeric limits for vibration as it pertains to structural damage. The FTA criteria to evaluate potential damage to buildings are shown in Table 3.11-3. For example, for Category III, (nonengineered timber and masonry buildings), a threshold of 0.2 in/sec peak particle velocity (PPV) would apply.

Traffic Noise

Because the City of Berkeley does not have recommended thresholds of significance for traffic noise increases, the following thresholds of significance, similar to those recommended by the Federal Interagency Committee on Noise, are used to assess traffic noise impacts at sensitive receptor locations:

- Greater than 1.5 dBA increase for ambient noise environments of 65 dBA L_{dn} and higher.
- Greater than 3 dBA increase for ambient noise environments of 60 to 64 dBA L_{dn}.
- Greater than 5 dBA increase for ambient noise environments of less than 60 dBA L_{dn}.

Stationary Noise

Stationary noise sources are regulated by each respective city’s municipal code. The City of Berkeley noise standards are shown in Table 3.11-4, Exterior Noise Limits. These standards are used to determine impact significance for stationary noise sources.

ISSUES NOT EVALUATED FURTHER

Airport Noise

The project site is not located within two miles of an airport land use plan. Oakland International Airport is the closest airport and is located approximately 10.5 miles south of the project site. Therefore, the project would not result in noise impacts related to the exposure of people residing or working in the project area to excessive aircraft-related noise levels. This issue is not discussed further.

Long-term Operational Vibration

The project would not result in the development of any major sources of long-term or permanent ground vibration such as commercial railways or passenger rail transit lines. Therefore, development facilitated by the project would not result in long-term operational activities associated with permanent or substantial levels of ground vibration. This issue is not discussed further.

IMPACT ANALYSIS

Impact 3.11-1: Implementing the project would generate substantial temporary construction noise.

Construction of the project would result in noise-generating activities. The effects of construction noise largely depend on the type of construction activities being performed, noise levels generated by those activities, distances to noise-sensitive receptors, the relative locations of noise attenuating features such as vegetation and existing structures, and existing ambient noise levels. Noise-generating activities occurring during the more noise-sensitive evening and nighttime hours are of increased concern. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as typical levels of community activities (e.g., industrial activities, vehicle traffic) decrease, construction activities performed during the more noise-sensitive evening and nighttime hours could result in increased annoyance and potential sleep disruption for occupants of nearby residential land uses. However, project construction activities would generally occur Monday through Friday between 7:00 a.m. and 5:00 p.m. in compliance with the City of Berkeley Municipal Code, generally with no construction at nighttime, on the weekends, or on holidays. Additionally, if extended weekday work hours or weekend or nighttime construction work is required, UC Berkeley would obtain approval from the City of Berkeley prior to conducting weekend or nighttime construction work.

Construction noise typically occurs intermittently and varies depending on the nature of the construction activities being performed. This analysis evaluates potential construction noise associated with the construction equipment mix for each phase of project construction as provided by UC Berkeley, which can be found in Appendix H. As described in Chapter 2, “Project Description,” construction of the project is anticipated to start in summer 2024 and last approximately 10 months for site demolition and preparation and 30 to 36 months for building construction. Construction noise would be temporary in nature and would include noise from activities such as demolition, truck hauling of material, site preparation, grading, building construction, architectural coating, and paving for the parking structure. Pile-driving is assumed for building foundations. Based on the types of construction activities assumed for the project (e.g., demolition, grading, building construction), it is expected that the primary sources of noise would include pile drivers, graders, tractors, dozers, backhoes, excavators, dump trucks, and various trucks (e.g., job trucks, water trucks, fuel trucks). Typical noise levels generated by various types of construction equipment likely to be used are identified in Table 3.11-9.

Table 3.11-9 Typical Construction Equipment Noise Emission Levels

Equipment Type	dBA L_{max} at 50 feet
Air Compressor	80
Auger Drill	85
Backhoe	80
Concrete Mixer	85
Concrete Pump	82
Concrete Saw	90
Crane	85
Dozer	85
Drum Mixer	80
Front End Loader	80
Generator	82
Grader	85
Impact Pile Driver	95
Loader	80
Man Lift	85
Paver	85
Pickup Trucks	55
Roller	85
Tractor	84

Sources: FTA 2018; FHWA 2006.

On-site Construction Noise

To estimate noise levels at nearby sensitive receptors, the distance between the noise source and receiver is used to calculate additional spreading loss beyond the reference distance of 50 feet. Because the City of Berkeley construction noise standards are in terms of L_{max} and not the average noise level, L_{eq}, noise levels were estimated by measuring the distance from the edge of the construction site to the sensitive receptor/building for all equipment, except for pile driving and paving. Pile driving is assumed to occur within 5 feet of the proposed building(s) façade, for foundational columns. The nearest sensitive receptors are located within 5, 10, 25, 100 and 200 feet to project construction activity. The nearest sensitive receptors and their respective distance to the project site are summarized in Table 3.11-10.

Table 3.11-10 Noise Exposure at Off-Site Noise-Sensitive Receptors from Typical Construction Activity

Noise Sensitive Receptor	Land Use	Direction	Distance to Project Site
Modera Acheson Commons	Residential/Apartments	North	100 feet
Anchor House	Residential	North	100 feet
UC Berkeley Crescent Lawn	Park/Recreational	East	100 feet
Heywood Apartments	Residential/Apartments	West	5 – 100 feet
Residence Inn by Marriott Berkeley	Hotel	South	200 feet

The noise levels at the various sensitive receptors included in Table 3.11-10 (above) are shown in Table 3.11-11 (below) and would range from 43 dBA L_{max} to 115 dBA L_{max}. As shown in Table 3.11-11, noise levels from project construction would exceed the City of Berkeley's weekday multi-family/residential construction noise standards of 65 dBA L_{max} and weekend noise standards of 55 dBA L_{max}.

Table 3.11-11 Noise Exposure at Off-Site Noise-Sensitive Receptors from Typical Construction Activity

Phase	Equipment per Phase	Noise Levels at Sensitive Receptors, dBA L_{max} 200 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 100 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 25 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 10 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 5 feet
Demolition	Concrete Saw	78	84	96	104	110
	Dozer	73	79	91	91	105
	Tractor	72	78	90	90	104
	Front End Loader	68	74	86	86	100
	Backhoe	68	74	86	86	100
	Pickup Truck	43	49	61	61	75
Site Preparation	Grader	73	79	91	99	105
	Tractor	72	78	90	98	104
	Front End Loader	68	74	86	94	100
	Backhoe	68	74	86	94	100
	Pickup Truck	43	49	61	69	75
Grading	Concrete Saw	78	84	96	104	110
	Dozer	73	79	91	99	105
	Tractor	72	78	90	98	104
	Front End Loader	68	74	86	94	100
	Backhoe	68	74	86	94	100
	Pickup Truck	43	49	61	69	75
Building Construction	Crane	73	91	99	99	105
	Man Lift	73	91	99	99	105
	Tractor	72	90	98	98	104
	Front End Loader	68	86	94	94	100
	Backhoe	68	86	94	94	100
	Auger Drill Rig	73	91	99	99	105
Pile Driving	Impact Pile Driver	83	89	101	109	115
Architectural Coating	Compressed air	68	74	86	94	100

Phase	Equipment per Phase	Noise Levels at Sensitive Receptors, dBA L_{max} 200 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 100 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 25 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 10 feet	Noise Levels at Sensitive Receptors, dBA L_{max} 5 feet
Paving	Drum Mixer	68	74	86	94	100
	Paver	73	79	91	99	105
	Roller	73	79	91	99	105
	Tractor	72	78	90	98	104
L_{max} Minimum	**Pickup Truck**	**43**	**49**	**61**	**61**	**75**
L_{max} Maximum	**Impact Pile Driver**	**83**	**89**	**101**	**109**	**115**

Notes: dBA = A-Weighted Decibels; L_{max}= maximum sound level.

The project would be required to comply with the UC Berkeley Campus Design Standards, which include noise control procedures such as the prohibition of machines left idling. Additionally, as described in Chapter 2, "Project Description," UC Berkeley would implement the CBPs listed below as part of the project (see Appendix B for a complete list of UC Berkeley CBPs). Adherence to these CBPs would minimize construction noise impacts.

- **CBP NOI-2:** UC Berkeley will require the following measures for all construction projects:
  - Construction activities will be limited to a schedule that minimizes disruption to uses surrounding the project site as much as possible. Construction outside the Campus Park will be scheduled within the allowable construction hours designated in the noise ordinance of the local jurisdiction to the full feasible extent, and exceptions will be avoided except where necessary. As feasible, construction equipment will be required to be muffled or controlled.
  - The intensity of potential noise sources will be reduced where feasible by selection of quieter equipment (e.g., gas or electric equipment instead of diesel powered, low noise air compressors).
  - Functions such as concrete mixing and equipment repair will be performed off-site whenever possible.
  - Stationary equipment such as generators and air compressors will be located as far as feasible from nearby noise-sensitive uses.
  - At least 10 days prior to the start of construction activities, a sign will be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours, as well as the telephone numbers of UC Berkeley's and contractor's authorized representatives that are assigned to respond in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, they will investigate, take appropriate corrective action, and report the action to UC Berkeley.
  - During the entire active construction period and to the extent feasible, the use of noise-producing signals, including horns, whistles, alarms, and bells, will be for safety warning purposes only. The construction manager will use smart back-up alarms, which automatically adjust the alarm level based on the background noise level, or switch off back-up alarms and replace with human spotters in compliance with all safety requirements and laws.
  - For projects requiring pile driving:
    - With approval of the project structural engineer, pile holes will be pre-drilled to minimize the number of impacts necessary to seat the pile.
    - Pile driving will be scheduled to have the least impact on nearby sensitive receptors.
    - Pile drivers with the best available noise control technology will be used. For example, pile driving noise control may be achieved by shrouding the pile hammer point of impact, by placing resilient padding directly on top of the pile cap, and/or by reducing exhaust noise with a sound-absorbing muffler.

- Alternatives to impact hammers, such as oscillating or rotating pile installation systems, will be used where possible.

- **CBP NOI-3:** UC Berkeley will precede all new construction projects that are outside of the Campus Park, the Clark Kerr Campus, or adjacent to a non-UC Berkeley property with community notification, with the purpose of ensuring that the mutual needs of the particular construction project and of those impacted by construction noise are met, to the extent feasible.

Off-site Improvements Construction Noise

Off-site improvements would include the demolition of the existing University Hall steam pipe infrastructure beneath Oxford Street and trenching for new building utility connections (sewer, water, electric, fiber). Construction equipment typically associated with infrastructure demolition and trenching include saw-cutting and pavement-breaking machines and jackhammers (used sparingly) to break up sections of concrete that the saw-cutting and pavement-breaking machines cannot reach; as well as, portable generators, air compressors, and backhoes. Sensitive receptors could be within 50 feet of these off-site improvements and experience noise levels between 80 dBA L_{max} and 90 dBA L_{max} at 50 feet. Noise levels from off-site improvements would also exceed the City of Berkeley's weekday multi-family/residential construction noise standards of 65 dBA L_{max} and weekend multi-family/residential construction noise standards of 55 dBA L_{max}.

Summary

On-site and off-site construction activities would generally occur on weekdays during the City's allowable hours of 7:00 a.m. to 5:00 p.m. with no construction generally anticipated to occur at nighttime, over the weekends, or on holidays. Additionally, project construction would implement CBPs to reduce construction noise. CBP NOI-2 would reduce construction noise impacts by siting equipment as far away as possible from sensitive receptors; limiting the schedule of construction activities; requiring the use of quieter equipment when feasible; and requiring that alternatives to pile driving be used where possible. However, even with adherence to the UC Berkeley Campus Design Standards and CBP NOI-2 and CBP NOI-3, on-site and off-site construction activities would exceed the City of Berkeley's weekday and weekend construction noise standards for multi-family uses at surrounding sensitive receptors. Thus, construction noise impacts would be **potentially significant.**

Mitigation Measures

Mitigation Measure 3.11-1: Implement Construction-Noise Reduction Measures

Where construction noise could exceed the applicable noise thresholds of significance (see City of Berkeley Municipal Code Section 13.40.070, Prohibited Acts) for maximum construction noise levels (dBA L_{max}), or that involve impulse equipment such as jackhammers, hoe rams, and pile driving, temporary noise barriers at least 12 feet high shall be erected, as necessary and feasible, to reduce construction noise levels. Temporary noise barriers shall be constructed with solid material with a density of at least 1.5 pounds per square foot with no gaps from the ground to the top of the temporary noise barrier and may be lined on the construction side with an acoustical blanket, curtain, or equivalent absorptive material. UC Berkeley shall verify compliance with this measure prior to issuance of demolition, grading, and/or building permits.

Significance after Mitigation

Mitigation Measure 3.11-1 would require the installation of temporary noise barriers during project construction. While such barriers can achieve up to 20 dBA of noise reduction, the barriers would be most effective at ground-level, given their height, and would not provide substantial reductions at multi-story heights. Therefore, installation of noise barriers would be most effective during excavation and foundation work and would not be as effective during demolition and construction of the buildings occurring above the ground-floor level. Therefore, Mitigation Measure 3.11-1 would not reduce noise impacts during construction to a less-than-significant level. Adherence to the CBPs and implementation of Mitigation Measure 3.11-1 would not likely be sufficient to reduce construction noise exposure levels at nearby sensitive receptors to below the applicable standard, and even with implementation of Mitigation Measure 3.11-1, construction noise impacts would be **significant and unavoidable**.

Impact 3.11-2: Implementing the project would generate substantial temporary construction vibration levels.

Construction activities and equipment would result in two types of vibration impacts, vibration damage and vibration annoyance. Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and, at high levels, cause damage to nearby structures.

Pile driving and blasting are the types of construction activities that typically generate the highest vibration levels and, therefore, are of greatest concern when evaluating construction-related vibration impacts. No blasting activities are proposed or assumed to be required, but pile driving may be required for building foundation and building construction. Table 3.11-12 presents the FTA reference vibration levels for construction equipment at 25 feet for both vibration damage (PPV) and vibration annoyance (VdB) and the screening distance for different land uses.

Table 3.11-12 FTA Reference Vibration Levels for Construction Equipment

Equipment	Reference VdB at 25 feet	VdB Screening Distance to 72 VdB in feet[1]	Reference PPV (in/sec) at 25 feet	Screening Distance to 0.2 PPV in/sec in feet[2]	Screening Distance to 0.12 PPV in/sec in feet[3]
Pile Driving	112	520	1.518	97	136
Large Bulldozer/Caisson Drilling	87	80	0.089	15	21
Jackhammer	79	44	0.035	8	11
Small Bulldozer	58	8.5	0.003	1.55	2.2

Source: FTA 2018: 184.

Notes: Peak Particle Velocity inches per second (PPV in/sec); Vibration Decibel (VdB).

[1] FTA Land Use Category II, Residences, and buildings where people normally sleep.

[2] FTA Building Category III, Non-engineered timber and masonry buildings (residential).

[3] FTA Building Category IV, Buildings extremely susceptible to vibration damage (historic).

Vibration Damage

The nearest structures to the project site are the buildings within the same city block bounded by University Avenue, Oxford Street, Addison Street, and Kala Bagai Way and buildings across the street from these roadways. Distances from the project boundary to these buildings are between 5 feet and 100 feet. For a conservative analysis, all equipment is assumed to operate at the edge of the project boundary. As outlined in Table 3.11-3, the FTA establishes vibration damage criteria for four distinct building category types. Notably, all the neighboring buildings surrounding the project site, except for the Heywood Apartments, conform to the FTA's Building Category III (non-engineered timber and masonry) criteria or stronger, with a corresponding vibration damage threshold of at least 0.2 in/sec PPV. The Heywood Apartments building, recognized as a designated historical landmark, falls under Building Category IV (buildings extremely susceptible to vibration damage), with a vibration damage threshold of 0.12 in/sec PPV.

Non-Historic Structures

The nearest non-historical buildings to the project site include the buildings to the west within the same city block as the project site, and buildings to the north and south across University Avenue and Addison Street, respectively. These buildings include office, retail, and residential uses. Table 3.11-13 shows the distances to construction equipment and the corresponding vibration levels.

Table 3.11-13 Vibration Damage Levels at Nearby Buildings

Nearest Buildings/Structures	Building to Construction Equipment - Pile Driving	Building to Construction Equipment - Large Bulldozer	Building to Construction Equipment - Cassion Drilling	Building to Construction Equipment - Jackhammer	Building to Construction Equipment - Small Bulldozer
To the West					
Distance to WeWork Offices	10 feet	5 feet	10 feet	5 feet	5 feet
PPV in/Sec	*6.000**	*0.995**	*0.352**	*0.391**	*0.034*
Distance to Malazui Tasty Bowl	20 feet	15 feet	15 feet	15 feet	15 feet
PPV in/Sec	*2.121**	*0.191*	*0.191*	*0.075*	*0.006*
Distance to Rise at Berkeley	60 feet	50 feet	50 feet	50 feet	50 feet
PPV in/Sec	*0.408**	*0.031*	*0.031*	*0.012*	*0.001*
Distance to Patelco Credit Union	80 feet	70 feet	70 feet	70 feet	70 feet
PPV in/Sec	*0.265**	*0.019*	*0.019*	*0.007*	*0.001*
To the North					
Distance to Anchor House/ Modera Acheson Commons/ Medical Office	110 feet	100 feet	100 feet	100 feet	100 feet
PPV in/Sec	*0.164*	*0.011*	*0.011*	*0.004*	*<0.001*
To the South					
Distance to 2112-2114 Addison Street	75 feet	65 feet	65 feet	65 feet	65 feet
PPV in/Sec	*0.292**	*0.021*	*0.021*	*0.008*	*0.001*
Distance to Berkeley Art Museum	85 feet	75 feet	75	75	75 feet
PPV in/Sec	0.242*	0.017	0.017	0.007	0.001

Notes: in/sec = inches per second; PPV = peak particle velocity
* = exceedance of 0.2 in/sec PPV threshold

As shown in Table 3.11-13, construction equipment could generate vibration levels less than 0.001 in/sec PPV and up to 6 in/sec PPV at the nearest buildings and at times exceed the 0.2 in/sec PPV vibration threshold at most of the surrounding buildings, with the exceptions being Anchor House, Modera Acheson Commons, and the One Medical office building located across University Avenue.

<u>Historical Structures</u>

Heywood Apartments and The Studio Building are two designated historical landmarks within the project vicinity. Heywood Apartments were constructed in 1906 and designated a historical landmark in the City of Berkeley in April of 2003. The Studio Building was constructed in 1905, designated a historical landmark in the City of Berkeley in May of 1978, and was added to the National Register of Historic Places in 1978. Due to their historic significance and date of construction, these buildings are analyzed using the FTA criterion of 0.12 in/sec PPV for Building Category IV, buildings with extreme susceptibility to vibration damage. Table 3.11-14 shows the distances of historical buildings to construction equipment and the corresponding vibration levels.

Table 3.11-14 Vibration Damage Levels at Historical Buildings

Nearest Buildings/Structures to the West	Building to Construction Equipment – Pile Driving	Building to Construction Equipment – Large Bulldozer	Building to Construction Equipment – Cassion Drilling	Building to Construction Equipment - Jackhammer	Building to Construction Equipment – Small Bulldozer
Distance to The Studio Building	10 feet	5 feet	10 feet	5 feet	5 feet
PPV in/Sec	*6.000**	*0.995**	*0.352**	*0.391**	*0.034*
Distance to Heywood Apartments	20 feet	15 feet	15 feet	15 feet	15 feet
PPV in/Sec	*2.121**	*0.191**	*0.191**	*0.075*	*0.006*

Notes: in/sec = inches per second; PPV = peak particle velocity
* = exceedance of 0.12 in/sec PPV threshold.

As shown in Table 3.11-14, construction equipment could generate vibration levels between 0.006 in/sec PPV and up to 6 in/sec PPV at the designated historical landmark buildings. Therefore, vibration would exceed the 0.12 in/sec PPV vibration threshold for historical buildings.

Vibration Annoyance

Vibration annoyances assess the human response to perceptible vibration levels generated by temporary construction equipment. The FTA criterion for vibration annoyance from frequent vibration events (i.e., more than 70 vibration events from the same source per day) at residential receptors is 72 VdB. The nearest residential dwellings are the apartment homes to the north, west, and south of the project site. As shown in Table 3.11-15, vibration levels (VdB) from construction equipment at these residential uses would vary between 40 VdB and 115 VdB, depending on the equipment and proximity to the sensitive receptor. Thus, at times, depending on the equipment used and proximity, the surrounding nearest residential receptors would experience vibration levels that exceed the FTA 72 VdB vibration criterion.

Table 3.11-15 Vibration Annoyance Levels

Nearest Residential Buildings	Building to Construction Equipment – Pile Driving	Building to Construction Equipment – Large Bulldozer	Building to Construction Equipment – Cassion Drilling	Building to Construction Equipment - Jackhammer	Building to Construction Equipment – Small Bulldozer
Distance to Rise at Berkeley	60 feet	50 feet	50 feet	50 feet	50 feet
Levels in VdB	101*	78*	78*	70	49
Distance to Anchor House/ Modera Acheson Commons	110 feet	100 feet	100 feet	100 feet	100 feet
Levels in VdB	93*	69	69	61	40
Distance to 2112-2114 Addison Street Apartments	75 feet	65 feet	65 feet	65 feet	65 feet
Levels in VdB	98*	75*	75*	67	46
Distance to Heywood Apartments	20 feet	15 feet	15 feet	15 feet	15 feet
Levels in VdB	115*	94*	94*	86*	65

Notes: VdB = Vibration decibel, a unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is one microinch per second (1x10-6 in/sec).
* = exceedance of the 72 VdB threshold

Vibration Summary

High levels of vibration could result in vibration damage to physical buildings and could also result in a vibration annoyance to residents of nearby residential structures. Due to the proximity and type of equipment assumed for project construction, vibration levels would exceed the FTA criteria of 0.2 in/sec PPV (vibration damage for non-engineered timber and masonry), 0.12 in/sec PPV (buildings extremely susceptible to vibration damage), and 72 VdB (vibration annoyance) at multiple surrounding buildings as detailed in Tables 3.11-13 through 3.11-15. Thus, vibration damage and vibration annoyance impacts are considered **potentially significant**.

Mitigation Measures

Mitigation Measure 3.11-2: Implement Construction Vibration Measures

UC Berkeley shall implement the following steps to ensure impacts from vibration causing construction activities/equipment will be less than significant to surrounding structures.

- Step 1 (Activity/Equipment Screening Distances): UC Berkeley shall use the FTA construction vibration screening standards shown in Table 3.11-2 and Table 3.11-3 to determine if the construction activity/equipment is within the vibration screening distances that could cause building damage/human annoyance. If the construction activity/equipment is within the screening distance, then Step 2 (Alternative Methods/Equipment) shall be implemented.
- Step 2 (Alternative Methods/Equipment): When the anticipated vibration-causing construction activity/equipment is within the screening standards in Step 1 (Activity/Equipment Screening Distances), UC Berkeley shall consider whether alternative methods/equipment are available and shall verify that the alternative method/equipment is shown on the construction plans prior to the beginning of construction. Alternative methods/equipment may include, but are not limited to:
  - For pile driving, the use of caisson drilling (drill piles) vibratory pile drivers, oscillating or rotating pile installation methods, and jetting or partial jetting of piles into place using a water injection at the tip of the pile shall be used, where feasible.
  - For paving, use of a static roller in lieu of a vibratory roller shall be implemented.
  - For grading and earthwork activities, off-road equipment shall be limited to 100 horsepower or less.

  Where alternative methods/equipment to vibration causing activities/equipment are not feasible, then Step 3 (Construction Vibration Monitoring Program) shall be implemented.
- Step 3 (Construction Vibration Monitoring Program): Prior to any project-related excavation, demolition, or construction activity within the screening distances referenced in Step 1 (Activity/Equipment Screening Distances) and where alternative methods/equipment to vibration causing activities/equipment are not feasible pursuant to Step 2 (Alternative Methods/Equipment), UC Berkeley shall prepare a construction vibration monitoring program. The program shall be prepared and implemented by a qualified acoustical consultant or structural engineer. Where the vibration sensitive receptors are historic resources, the program shall be prepared and implemented by a structural engineer with a minimum of five years of experience in the rehabilitation and restoration of historic buildings and a historic preservation architect meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualifications Standards. The program shall include the following:
  - Prepare an existing conditions study to establish the baseline condition of the vibration sensitive resources in the form of written descriptions with a photo survey, elevation survey, and crack-monitoring survey for the vibration-sensitive building or structure. The photo survey shall include internal and external crack monitoring in the structure, settlement, and distress, and document the condition of the foundation, walls, and other structural elements in the interior and exterior of the building or structure. Surveys will be performed prior to, in regular intervals during, and after completion of all vibration-generating activity. Where receptors are historic resources (Heywood Apartments and The Studio Building), the study shall describe the physical characteristics of the resources that convey their historic significance.

- Determine the number, type, and location of vibration sensors and establish a vibration velocity limit (as determined based on a detailed review of the proposed buildings), method (including locations and instrumentation) for monitoring vibrations during construction, and method for alerting responsible persons who have the authority to halt construction should limits be exceeded or damaged observed.
- Perform monitoring surveys prior to, in regular intervals during, and after completion of all vibration-generating activity and report any changes to existing conditions, including, but not limited to, expansion of existing cracks, new spalls, other exterior deterioration, or any problems with character-defining features of a historic resource that are discovered. UC Berkeley shall establish the frequency of monitoring and reporting, based upon the recommendations of the qualified acoustical consultant or structural engineer or by the historic architect and structural engineer for the historic Heywood Apartments and The Studio Building. Monitoring reports shall be submitted to UC Berkeley's designated representative responsible for construction activities.
- Develop a vibration monitoring and construction contingency plan, which shall identify where monitoring would be conducted, establish a vibration monitoring schedule, define structure-specific vibration limits, and require photo, elevation, and crack surveys to document conditions before and after demolition and construction activities. Construction contingencies would be identified for when vibration levels approach the limits. If vibration levels approach limits, suspend construction, and implement contingencies to either lower vibration levels or secure the affected structure.
- Report substantial adverse impacts to vibration sensitive buildings including historic resources related to construction activities that are found during construction to UC Berkeley's designated representative responsible for construction activities. UC Berkeley's designated representative shall adhere to the monitoring team's recommendations for corrective measures, including halting construction or using different methods, in situations where demolition, excavation/construction activities would imminently endanger historic resources. UC Berkeley's designated representative would respond to any claims of damage by inspecting the affected property promptly, but in no case more than five working days after the claim was filed and received by UC Berkeley's designated representative. Any new cracks or other damage to any of the identified properties will be compared to pre-construction conditions and a determination made as to whether the proposed project could have caused such damage. If the project is demonstrated to have caused any damage, such damage would be repaired to the pre-existing condition. Site visit reports and documents associated with claims processing would be provided to the relevant government body with jurisdiction over the neighboring historic resource, as necessary.
- Conduct a post-survey of the structure where either monitoring has indicated high levels or complaints of damage and make appropriate repairs where damage has occurred as a result of construction activities.
- Prepare a construction vibration monitoring report that summarizes the results of all vibration monitoring and submit the report after the completion of each phase identified in the project construction schedule. The vibration monitoring report shall include a description of measurement methods, equipment used, calibration certificates, and graphics as required to clearly identify vibration-monitoring locations. An explanation of all events that exceeded vibration limits shall be included together with proper documentation supporting any such claims. The construction vibration monitoring report shall be submitted to UC Berkeley within two weeks of completion of each phase identified in the project construction schedule.
- Designate a person responsible for registering and investigating claims of excessive vibration. The contact information of such a person shall be clearly posted in one or more locations at the construction site.

Significance after Mitigation

Implementation of Mitigation Measure 3.11-2 would require alternative methods or equipment to be implemented and, if necessary, the preparation and implementation of a construction vibration monitoring program. These measures would ensure compliance with recommended levels to prevent structural damage and human annoyance. Thus, this impact would be reduced to a **less-than-significant** level.

Impact 3.11-3: Implementing the project would not generate a substantial increase in long-term traffic noise levels.

Vehicle trips associated with operation of the project would result in an increase in average daily traffic volumes and associated increases in traffic noise levels along roadway segments used to travel to and from the project site. To analyze the impact of project-generated operational traffic noise sources, traffic noise levels under existing and existing plus project conditions were modeled for affected roadway segments. Refer to Appendix H for detailed traffic noise modeling input parameters.

Table 3.11-16 summarizes the traffic noise levels for each roadway segment under existing and existing plus project conditions and includes the incremental increase in traffic noise levels over existing conditions. As shown in Table 3.11-16, the project would result in traffic noise level increases of approximately 0.4 dBA L_{dn} or less along affected roadway segments.

Table 3.11-16 Summary of Modeled Traffic Noise Levels

Roadway	From	To	Existing L_{dn} (dBA) at 50 feet	Existing Plus Project L_{dn} (dBA) at 50 feet	Change (dBA)	Exceeds Applicable Threshold?
University Avenue	West of Shattuck Avenue		67.0	67.1	0.1	No
University Avenue	Shattuck Avenue	Project Driveway	66.6	66.7	0.1	No
University Avenue	Project Driveway	Oxford Street	66.7	66.7	0.0	No
Shattuck Avenue	North of University Avenue		67.3	67.3	0.0	No
Shattuck Avenue	University Avenue	Addison Street	69.0	69.1	0.1	No
Shattuck Avenue	South of Addison Street		69.7	69.7	0.0	No
Oxford Street	North of University Avenue		67.3	67.3	0.0	No
Oxford Street	University Avenue	Addison Street	59.4	59.6	0.2	No
Oxford Street	South of Addison Street		64.2	64.3	0.1	No
Addison Street	Shattuck Avenue	Oxford Street	56.3	56.7	0.4	No

Notes: dBA = A-weighted decibels; L_{dn} = day-night sound level

Source: Modeled by Ascent in 2024 using traffic volumes provided by Kittelson & Associates, Inc.

As shown in Table 3.11-16, four roadway segments would not experience an increase in traffic noise as a result of project implementation. Traffic noise would increase up to 0.4 dBA L_{dn} along Addison Street from Shattuck Avenue to Oxford Street, which is the largest traffic noise increase within the vicinity of the project site. Existing noise levels along this roadway segment are above 65 dBA L_{dn}, and thus a noise increase above 1.5 dBA L_{dn} would be considered significant. However, traffic noise increases along this roadway segment, and all roadway segments would be less than 1.5 dBA L_{dn} and therefore, traffic noise increases would be **less than significant.**

Impact 3.11-4: Implementing the project would expose existing sensitive receptors to new stationary noise sources.

Preliminary site plans show the project would include one courtyard, two loading areas, and HVAC equipment. The courtyard would be situated between the South Building and the North Building. One loading area would be located on the western façade of the South Building and the other is a U-shaped area that would be nestled within the North Building next to the courtyard. HVAC equipment is assumed to go on the rooftops of each building enclosed by parapets and screens.

Courtyard

Modern courtyards, specifically in higher education spaces, are open space areas used for relaxation, studying, eating during breaks, or talking to peers. Thus, the primary noise source associated with the courtyard would be from voices during conversations. Noise levels associated with speech can vary depending on the nature of the communication. A conversation between two people using a normal voice is 60 dBA at 3 feet. If people are in an environment that requires raised voices for audibility, voice levels would typically be 66 dBA at 3 feet (Toolbox 2005). The nearest noise sensitive receptors to the courtyard are the Heywood Apartments, approximately 80 feet to the west. At 80 feet, noise levels associated with speech would be reduced to 31 to 37 dBA. This would not exceed the City of Berkeley day or nighttime noise standard of 60 and 55 dBA for multi-family and high-density residential, respectively. All other sensitive receptors are further away and would experience further attenuated noise levels that would not exceed the threshold.

Heating and Cooling Systems

Detailed information regarding the make and model of the stationary equipment to be installed is not available at this time. However, noise levels commonly associated with air conditioning systems can reach levels of up to 78 dB at 3 feet (Lennox 2018). Applying this reference noise level as an hourly average (L_{eq}) and assuming a 50 percent usage rate, would result in 75 dBA L_{eq} at 3 feet from the source. Equipment will be located within an enclosed mechanical space on the roof of each building. The rooftop mechanical spaces would be set back from the edge of each roof. However, this analysis conservatively assumes that equipment would be installed near the edge of the rooftops closest to the sensitive receptors. The nearest sensitive receptors to the project buildings are the Heywood Apartments, approximately 30 feet west of the South Building. At 30 feet, HVAC noise levels would attenuate to 55 dBA. This would not exceed the City of Berkeley day or nighttime noise standard of 60 and 55 dBA for multi-family and high-density residential, respectively. All other sensitive receptors are further away and would experience further attenuated noise levels. In addition, this analysis does not take into consideration other attenuating noise factors, such as parapet walls, noise screens or enclosures, and thus the analysis is conservative. Furthermore, the project would implement CBP NOI-1, which requires mechanical equipment selection and building design to be used so that noise levels from future building operations would not exceed the City of Berkeley Noise Ordinance limits for commercial areas or residential zones as measured on any commercial or residential property in the area surrounding a project site. Controls typically incorporated to attain this outcome include selection of quiet equipment, sound attenuators on fans, sound attenuator packages for cooling towers and emergency generators, acoustical screen walls, and equipment enclosures.

- **CBP NOI-1:** Mechanical equipment selection and building design shielding will be used, as appropriate, so that noise levels from future building operations would not exceed the City of Berkeley Noise Ordinance limits for commercial areas or residential zones as measured on any commercial or residential property in the area surrounding a project proposed to implement the LRDP. Controls typically incorporated to attain this outcome include selection of quiet equipment, sound attenuators on fans, sound attenuator packages for cooling towers and emergency generators, acoustical screen walls, and equipment enclosures.

Loading Docks

The primary noise sources associated with loading docks are truck engine idling and contact noise from equipment (e.g., electric or manual pallets jacks) interacting with the truck, ramp, or ground during loading and unloading. A reference noise measurement conducted for another project for loading and unloading activities showed average noise levels of 59 dBA at a distance of 100 feet from a loading dock (Ascent 2023). The referenced noise level captured engine idling and loading and unloading activity noise. The nearest noise sensitive receptor to the loading areas is the Heywood Apartments located approximately 30 feet west of the South Building. The adjusted reference noise level at 30 feet would be 70 dBA L_{eq}. This would exceed the applicable City of Berkeley daytime and nighttime noise standards of 60 and 55 dBA, respectively.

The second closest receptor to the loading areas is the Rise at Berkeley apartment building, located approximately 155 feet to the west. When adjusted to 155 feet, the reference noise level would be 55 dBA L_{eq}. Therefore, the noise generated from the loading areas would not exceed the applicable City of Berkeley noise standards at sensitive receptors located beyond the Heywood Apartments.

Summary

The City of Berkeley stationary noise standard for multi-family and high-density residential uses is 60 dBA during the daytime hours and 55 dBA during the nighttime hours. When adjusted for distance to the nearest noise sensitive receptors, noise generated from the courtyard and rooftop HVAC systems would not exceed these noise standards. Additionally, the project would implement CBPs NOI-2 and NOI-3 as part of the project, as detailed above. However, noise generated from the loading area at the South Building would exceed both the daytime and nighttime noise standard by 10 dBA and 15 dBA, respectively, at the Heywood Apartments. Therefore, this impact would be **potentially significant.**

Mitigation Measures

Mitigation Measure 3.11-4a: Implement Noise Reduction Measures to Reduce Long-Term Noise Impacts of Loading Docks

To reduce the increases in noise associated with onsite truck and loading/unloading activities, the following measures shall be adopted as conditions of approval and implemented by the University:

- Strategic scheduling: The University shall schedule truck deliveries and all loading and unloading activities during the hours of 7:00 a.m. to 10:00 p.m. per Section 13.40.070 of the Berkeley Municipal Code to minimize sleep disturbance and evening leisure activities at the residential dwellings.
- Quiet equipment: The University shall provide quiet equipment for unloading and loading such as electric pallets jacks, low-noise forklifts or pallet jacks.
- Engine Idling: The University shall post a clear, visible, and legible sign for truck drivers instructing them to turn off engines as soon as possible to avoid unnecessary truck engine noise.
- Regular maintenance: University maintenance staff shall provide regular and routine maintenance to loading dock equipment, such as dock levelers, doors, pallet jacks or forklifts to prevent unnecessary noise caused by mechanical and wear and tear issues.
- Dock levelers and bumpers: The University shall upgrade or maintain dock levelers and bumpers to minimize noise generated by the impact of pallet jacks, forklifts, and other equipment during loading operations.
- Dock seals and shelters: The University shall install high-quality dock seals or shelters around the loading area to create a better seal between the dock and trucks, reducing noise leakage during loading and unloading.

Mitigation Measure 3.11-4b: Implement Design Measures to Reduce Long-Term Noise Impacts of Loading Docks

The University shall hire a qualified acoustical specialist to prepare a noise minimization plan that will identify site specific parameters (e.g., number of trucks accessing the site), design strategies, and noise attenuation features to reduce noise generated by on-site loading dock activity to levels that are below City of Berkeley daytime noise standards for multi-family and high-density residential uses (i.e., 60 dBA L_{50}). The noise minimization plan shall include, but not be limited to, a combination of the following measures (or other measures demonstrated to be equally effective).

- Design the South Building such that the structure serves as a barrier protecting off-site receptors from noise generated by loading dock activity. The typical sound level reduction a building could provide ranges from 12 dB with windows open to 27 dB with windows closed (EPA 1978: 11) and additional reduction is achievable if masonry exterior walls are used in the building's construction (Caltrans 2020: 7-37).

- Enclose the loading dock area with one or more walls such that it serves as a sound barrier between all adjacent sensitive receptors and the facility. The wall shall be constructed of solid material (e.g., concrete, brick), scenic quality factors shall be considered during design, and barriers shall be designed to blend into the landscape on the project site, to the extent feasible. Generally, a barrier that breaks the line of site between a source and a receiver will typically result in at least 5 dB of noise reduction.

Measures identified in the noise minimization plan shall be incorporated into the project design and identified on the final site plan. Prior to the approval of the final site plan, UC Berkeley shall verify that the measures are included in the site plan.

Significance after Mitigation

Implementation of Mitigation Measure 3.11-4a would require UC Berkeley to apply appropriate noise-reducing measures at the loading docks to minimize noise exposure at the nearest sensitive receptors and would prohibit loading activities to occur during the more sensitive hours of the day (10:00 p.m. to 7:00 a.m.). Implementation of Mitigation Measure 3.11-4b would require the use of building design to reduce noise levels from loading dock activity at off-site sensitive receptors. The use of building design to block off-site sensitive receptors from noise sources could achieve a 12 dB noise reduction. However, because site-specific parameters and the feasibility of design measures are currently unknown, it is not possible to guarantee that noise from loading dock activity would be reduced to levels that would not exceed City of Berkeley noise standards for sensitive receptors. Therefore, noise associated with loading and unloading would remain **significant and unavoidable**.

This page intentionally left blank.

3.12 POPULATION, EMPLOYMENT, AND HOUSING

This section describes the regulatory and environmental setting for population, employment, and housing on the project site and in the project vicinity, analyzes effects on population, employment, and housing that would result from implementation of the project, and provides mitigation measures, if applicable, to reduce the effects of any significant impacts.

Comments received in response to the notice of preparation (NOP) expressed concern about the potential increase in housing demand resulting from the project implementation. The comments are addressed, where appropriate, as part of the environmental analysis presented in this section. The NOP and the comments received on the NOP are provided in Appendix A.

3.12.1 Regulatory Setting

FEDERAL

There are no federal plans, policies, regulations, or laws addressing population, employment, and housing applicable to the project.

STATE

California Government Code

Section 7260 et seq. of the California Government Code requires all public entities to adopt rules and regulations to administer relocation assistance to all persons displaced by the public entity. Further, assistance policies must provide for fair, uniform, and equitable treatment. The code specifies that displaced persons are entitled to payment for actual moving costs and related expenses.

UNIVERSITY OF CALIFORNIA

UC Berkeley 2021 Long Range Development Plan

Each campus in the UC system periodically prepares a long range development plan (LRDP), which provides a high-level planning framework to guide land use and capital investment in line with its mission, priorities, strategic goals, and enrollment projections. The purpose of an LRDP is to provide adequate planning capacity for potential population growth and physical infrastructure that may be needed to support future population levels on each campus. An LRDP includes population projections to inform spacing needs and, more generally, for planning purposes but does not mandate growth or the provision of new facilities. The UC Berkeley LRDP was recently updated in 2021 (UC Berkeley 2021a). The 2021 LRDP population projections are summarized in Table 3.12-1 in Section 3.12.2, “Environmental Setting,” below.

Relocation Assistant Act Policy for Real Estate Acquisitions and Leases

The UC Relocation Assistance Act Policy for Real Estate Acquisitions and Leases, effective May 1, 2013, applies to situations in which people or businesses are required to vacate property as a result of acquisition or lease by the Regents. The policy is intended to implement state regulations and guidelines addressing relocation assistance. The policy establishes minimum requirements related to noticing displaced persons (with timelines), survey and analysis of relocation needs, payment of moving expenses, relocation payments and other aspects of relocation assistance (UC 2013).

REGIONAL

Plan Bay Area

The Association of Bay Area Governments (ABAG) is the official comprehensive planning agency for the San Francisco Bay region, which is composed of the nine counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma, and contains 101 jurisdictions. ABAG produces growth forecasts on four-year cycles for use by other regional agencies, including the Metropolitan Transportation Commission (MTC) and the Bay Area Air Quality Management District (BAAQMD), for project funding and regulatory decisions. The general plans, zoning regulations, and growth management programs of local jurisdictions inform the ABAG projections. The ABAG projections are also developed to reflect the impact of "smart growth" policies and incentives that could be used to shift development patterns from historical trends toward a better jobs-housing balance, increased preservation of open space, and greater development and redevelopment in urban core and transit-accessible areas throughout the ABAG region.

ABAG and MTC adopted Plan Bay Area 2050 in October 2021, which serves as the Bay Area's Regional Transportation Plan/Sustainable Community Strategy (ABAG and MTC 2021a). Priority Development Areas and Transit Priority Areas provide an implementing framework for Plan Bay Area 2050. The project site is located within a Priority Development Area and Transit Priority Area (Figure 2-2). Plan Bay Area 2050 projects approximately 60 percent of jobs are expected to be located within walking distance of high-quality transit (ABAG and MTC 2021a). Between 2015 and 2050, 22 percent of new jobs in the Bay Area are anticipated to be located in Alameda County (ABAG and MTC 2022).

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of population, employment, and housing impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of population, employment, and housing impacts. Therefore, local plans, policies, and regulations are not provided herein.

3.12.2 Environmental Setting

POPULATION

Regional and Loal Population

The population of the San Francisco Bay Area is expected to reach 10 million by 2050 from nearly 8 million in 2021 (ABAG and MTC 2021a). Per the California Department of Finance (DOF), the population in Alameda County is expected to increase from 1,638,979 to 1,898,488 people from 2022 to 2050 (DOF 2023a). In 2022, Berkeley's population was approximately 123,188 people (DOF 2023b). The City is expected to grow 15 percent by 2040, to 140,935, which is an additional 18,355 people (City of Berkeley 2023).

UC Berkeley Population

UC Berkeley influences population growth and distribution in the cities of Berkeley, Oakland, and surrounding cities in two ways: by changes in enrollment and changes in employment. As shown in Table 3.12-1, student population is expected to increase from 44,195 to 48,200 from 2022 to 2037, an increase of 4,005 students. The employee population is expected to increase from 15,136 to 19,000 during the same period, an increase of 3,864 employees. The project site is currently occupied by two commercial buildings, University Hall, which is currently vacant, and surface parking. No housing is provided at the project site.

Table 3.12-1 Current Campus Population and 2021 LRDP Population Projections

Population Group	Current Population (2022-2023)[1]	2021 LRDP Population Projection (2036-2037)	Net Change
Students			
Undergraduate	31,629	35,000	3,371
Graduate	12,566	13,200	634
Subtotal	*44,195*	*48,200*	*4,005*
Employees			
Faculty	3,107	4,200	1,093
Staff	12,029	14,800	2,771
Subtotal	*15,136*	*19,000*	*3,864*
Total	59,331	67,200	7,869

Note: [1] Faculty and staff headcount is based on 2020 October data and does not include student employees.

Sources: UC Berkeley 2023a, UC Berkeley 2023b, UC Berkeley 2021a.

EMPLOYMENT

Regional and Local Employment

Plan Bay Area 2050 estimates that the San Francisco Bay Area region would add 1.4 million jobs between 2015 and 2050, for a total of 5.4 million Bay Area workers (ABAG and MTC 2021b). Approximately 22 percent of the regional growth is projected to occur in Alameda County. Table 3.12-2 shows the employment growth projections within Alameda County. As shown in Table 3.12-2, approximately 5,400 jobs are expected to be added to the Northwest Alameda County in the cities of Albany, Berkeley, and Emeryville between 2023 and 2050.

Table 3.12-2 Employment in Alameda County (2015-2050)

Jurisdiction	2015	2023[1]	2050	2023-2050 Difference
East Alameda County (Dublin, Livermore, Pleasanton)	138,000	142,114	156,000	13,886
South Alameda County (Newark, Fremont, Union City)	142,000	160,057	221,000	60,943
Central Alameda County (San Leandro, Hayward)	157,000	186,257	285,000	98,743
North Alameda County (Alameda, Piedmont, Oakland)	275,000	300,143	385,000	84,857
Northwest Alameda County (Albany, Berkeley, Emeryville)	155,000	156,600	162,000	5,400

Note: [1] Data for 2023 is interpolated from 2015 and 2050 data.

Source: ABAG and MTC 2021b.

UC Berkeley Employment

As shown in Table 3.12-1, above, UC Berkeley currently employs approximately 15,136 people in the academic year of 2022-2023. It is projected that the number of UC Berkeley employees would increase to 19,000 by the academic year of 2036-2037. The project site currently houses approximately 16 employees in the two commercial buildings. Prior to the release of the NOP, University Hall was largely unoccupied with an average of 38 unique visitors/employees per day. Employees who used to work in University Hall were relocated to other UC buildings.

HOUSING

Regional and Local Housing

Table 3.12-3 shows selected housing characteristics for the City of Berkeley and Alameda County. From 2010 to 2023, the housing vacancy rate increased from 6.9 percent to 9.5 percent for the City of Berkeley, while the vacancy rate for Alameda County decreased from 6.4 percent to 5.1 percent. The City of Berkeley contains approximately 8 percent of Alameda County's housing stock. Implementation of the project would not include development of housing.

Table 3.12-3 Housing in Alameda County (2010 to 2023)

Jurisdiction	2010	2020	2023
City of Berkeley			
Total Housing Units	49,454	52,331	53,734
Occupied Housing Units	46,029	47,606	48,644
Vacancy Rate	6.9%	9.0%	9.5%
Alameda County			
Total Housing Units	581,372	621,958	641,809
Occupied Housing Units	544,046	591,636	608,875
Vacancy Rate	6.4%	4.9%	5.1%

Note: %=percent

Sources: DOF 2023a, 2023b.

UC Berkeley Housing

As shown in Table 3.12-4, UC Berkeley provides approximately 9,004 beds within the campus for students. Over 75 percent of these beds are on properties within the City Environs land use zone. No housing for students is provided within the project site.

Table 3.12-4 Existing UC Berkeley Housing

Zone	Number of Beds
Campus Park	0
Hill Campus West	1,502
Hill Campus East	0
Clark Kerr Campus	1,000
City Environs	6,502[1]
Total	**9,004**

Note: [1] The existing number of beds in the City Environs land use zone does not include the anticipated 722 beds provided by the Anchor House Student Housing.

Source: UC Berkeley 2021b.

3.12.3 Impact Analysis and Mitigation Measures

METHODOLOGY

The evaluation of potential impacts on population and housing is based on review of available population, employment, and housing estimates and projections from UC Berkeley, ABAG, MTC, and DOF.

Population growth is considered in the context of UC Berkeley, local, and regional plans and population, housing, and employment projections. As noted below, the project is included in UC Berkeley's 2021 LRDP population projections and Plan Bay Area 2050's projection of employment growth. Generally, a project that induces population growth is not viewed as having a significant impact on the environment unless this growth is unplanned and results in significant physical impacts on the environment. Thus, the increase in employment and associated potential for population growth and housing demand, if any, that would occur with implementation of the project would not be considered adverse physical impacts in and of themselves. However, the physical changes needed to accommodate project-related growth may have physical impacts on the environment. Such impacts would be associated with new or expanded transportation infrastructure, increases in the demand for utilities, public services, and recreational facilities, and increases in ambient noise levels, emissions of criteria air pollutants and toxic air contaminants, and greenhouse gas emissions. The physical impacts associated with construction and operation of the project, including those associated with the expansion of utilities and public services and of the physical effects of project operation, are considered throughout this EIR. State CEQA Guidelines Section 15064(e) notes that an economic or social change by itself would not be considered a significant effect on the environment.

THRESHOLDS OF SIGNIFICANCE

An impact related to population, employment, and housing would be significant if implementation of the project would:

- induce substantial unplanned 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); or
- displace substantial numbers of existing people or homes, necessitating the construction of replacement housing elsewhere.

ISSUES NOT DISCUSSED FURTHER

Displacement of Substantial Numbers of Existing People or Homes

The project site does not contain existing housing units. Therefore, implementation of the project would not displace existing people or homes. There are approximately 16 employees located on the project site. These employees are associated with the four businesses that are currently operational on the project site: two restaurants (Simply Bowl and Lucky House Thai Cuisine), a commercial printing company (Instant Copying & Laser Printing), and a medical office (Campus Dental Care). The number of employees at these existing businesses is small, and UC Berkeley is assisting the business owners to relocate to other locations, either on UC property or private property, in the project vicinity. While relocation of these businesses could require future leases and tenant improvements subject to separate CEQA analyses, any operational effects would remain substantially similar to existing conditions. Therefore, the project would not displace substantial numbers of existing people or homes, necessitating the construction of replacement housing elsewhere. No impact would occur, and this issue is not discussed further.

IMPACT ANALYSIS

Impact 3.12-1: The project would not induce substantial unplanned population growth, either directly or indirectly.

Implementation of the project would not include development of housing or the extension of roads or other infrastructure that would indirectly induce population growth. Access to the proposed parking garage would be provided along University Avenue, and the project would connect to existing utility lines that have capacity to serve the project (refer to Section 3.15, "Utilities and Service Systems"). Project implementation would not change the overall roadway network nor require the extension/expansion of existing utilities that could increase capacity for new uses. Therefore, the project would not induce population growth through development of new homes or infrastructure.

As noted above, University Hall is currently vacant. At present, on-site employment is limited to an estimated 16 employees within the two commercial buildings located along University Avenue; these employees would be relocated. The project would result in a net increase of up to 1,074 new employment opportunities. This is a very conservative estimate for the purposes of this EIR because it assumes that all future employees working in the new buildings would be new when it is likely that many will be existing employees of UC or UC affiliates that will relocate to the new buildings.

The addition of up to 1,074 new employment opportunities is within UC Berkeley's 2021 LRDP projection and Plan Bay Area 2050's projection of employment growth. As showing in Table 3.12-1, UC Berkeley's baseline population conditions and projected 2036-2037 population indicate that future on-campus population and employment are anticipated to increase by 4,005 students and 3,864 employees, respectively by 2036-2037. Based on the projected increase in employment within UC Berkeley, the project is considered to be part of the planned employment increases for the campus. Alameda's baseline employment conditions and projected 2050 employment estimates, as shown in Table 3.12-2, indicate that approximately 5,400 new jobs would be added to northwest Alameda County within the cities of Albany, Berkeley (which includes UC Berkeley), and Emeryville. The implementation of the project would result in a net increase of approximately 1,074 new employment opportunities within UC Berkeley jurisdiction, which represents approximately 20 percent of the job growth anticipated in northwest Alameda County. Therefore, the anticipated new employment opportunities are within the projections identified in the UC Berkeley 2021 LRDP and Plan Bay Area 2050.

While future employees may already reside within the City of Berkeley, there is a potential that some of these new employees would relocate to the City or to the vicinity of the City. As shown in Table 3.12-3, the housing vacancy rate increased from 6.9 percent to 9.5 percent in the City of Berkeley from 2010 to 2023. In 2023, there were approximately 5,090 vacant housing units in Berkeley (based on the 9.5 percent vacancy rate in Table 3.12-3). Although the housing vacancy rate decreased in Alameda County from 2010 to 2023, there were approximately 32,934 vacant units in the county in 2023 (Table 3.12-3). Given that only a small number of the project employees are likely to relocate to Berkeley or adjacent cities, it is reasonable to assume that the existing vacant housing units in the City of Berkeley and Alameda County could accommodate the potential housing needs of the new employees choosing to relocate to be closer to the project site.

Based on the discussion above, the addition of up to 1,074 new employment opportunities on the UC Berkeley campus is in keeping with the UC Berkeley and regional employment projections. Therefore, implementation of the project would not induce substantial unplanned population growth either directly or indirectly. The impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.13 PUBLIC SERVICES AND RECREATION

This section provides an overview of existing public services and recreational facilities in the vicinity of the project site and evaluates the potential for implementation of the project to affect availability, service level, and/or capacity of public services, including fire-protection services, police-protection services, public schools, public libraries, parks and recreation if such an effect is determined to occur, whether new or expanded facilities would be required that could result in a potentially significant impact to the environment. Publicly provided utility services, such as water and wastewater treatment, solid waste disposal, electricity, and natural-gas services, are addressed in Section 3.15, "Utilities and Service Systems."

No comments related to public services and recreation were received in response to the notice of preparation (NOP). The NOP and the comments received on the NOP are provided in Appendix A.

3.13.1 Fire Protection

REGULATORY SETTING

Federal

The Campus Fire Safety Right-to-Know Act

The Campus Fire Safety Right-to-Know Act in the Higher Education Opportunity Act was signed on August 1, 2008. Specifically, the legislation requires that a fire safety report be distributed by UC Berkeley with statistics from the most recent calendar year for which data are available and for each on-campus student housing facility. The statistics must include:

- The number of fires and the cause of each fire.
- The number of injuries related to a fire that resulted in treatment at a medical facility.
- The number of deaths related to a fire.
- The value of property damage caused by a fire.
- A description of each on-campus student housing facility's fire safety system, including the fire sprinkler system.
- The number of regular mandatory supervised fire drills.
- Policies or rules on portable electrical appliances, smoking, and open flames (such as candles); procedures for evacuation; and policies regarding fire safety education and training programs provided to students, faculty, and staff.
- Plans for future improvements in fire safety, if determined necessary by such institution.

State

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which includes regulations for building standards (as set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers, smoke alarms, high-rise building and childcare facility standards, and fire-suppression training.

California Occupational Safety and Health Administration

In accordance with California Code of Regulations (CCR), Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Equipment, the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

California Fire Code

The 2022 California Fire Code, which is codified at Part 9 of Title 24 of the CCR, incorporates by adoption the 2021 International Fire Code and contains regulations related to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The California Fire Code contains specialized technical regulations related to fire and life safety. The California Building Standards Code, including the California Fire Code, is revised and published every three years by the California Building Standards Commissions.

California Building Standards Code (Title 24)

Energy consumption of new buildings in California is regulated by State Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 2, Chapter 2-53. Title 24 applies to all new construction of both residential and nonresidential buildings, and regulates energy consumed for heating, cooling, ventilation, water heating, and lighting. The 2016 Building Energy Efficiency Standards have improved efficiency requirements from previous codes and the updated standards are expected to result in a statewide energy consumption reduction.

Effective January 1, 2011, CALGreen became California's first green building standards code. It is formally known as the California Green Building Standards Code, Title 24, Part 11, of the California Code of Regulations. CALGreen establishes mandatory minimum green building standards and requirements for construction and demolition (C&D) material diversion. Under Section 5.408 of the CALGreen Code, projects involving C&D activities are required to recycle and/or salvage for reuse a minimum of 65 percent of their nonhazardous C&D material. Applicable projects, such as the project, are required to prepare and implement a construction waste management plan.

University of California

Fire Safety Policy

UC Berkeley's fire safety policy, issued on June 15, 2017, establishes responsibilities to ensure that the campus's fire safety systems are available, tested, maintained, and effective. The policy establishes a basic protocol for whom to notify in the event of accidental, uncontrolled, or extinguished fires and explosions. The University of California Police Department (UCPD) must be notified immediately, and UCPD will notify local emergency services as necessary. In addition, the policy explains the responsibilities of the Campus Fire Marshal, who works under UC Berkeley's Office of Environment, Health & Safety (UC Berkeley 2017).

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes and policies, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues.

UC Berkeley Continuing Best Practices

UC Berkeley applies continuing best practices (CBPs) relevant to public services as part of the project approval process. CBPs that would be implemented as part of the project are identified in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operation, are identified and assessed for their potential to reduce adverse physical impacts later in the "Impact Analysis" section below. A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

Local

As discussed in Chapter 1, “Introduction,” UC Berkeley is constitutionally exempt from local governments’ regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Because the Berkeley Fire Department (BFD) provides fire protection and emergency medical services to all UC Berkeley properties located within the City of Berkeley, a selection of local policies related to fire protection and related emergency response are listed below as context for the assessment of related impacts.

Settlement Agreement with City of Berkeley

As part of its 2021 settlement agreement with the City of Berkeley, UC Berkeley has committed in concept to assisting the City of Berkeley in its development of a new fire station, if and when one may be necessary, by contributing land off of the Campus Park owned by UC Berkeley to serve the City and campus communities. Furthermore, the settlement agreement includes an initial annual payment of $2.8 million (increased annually by 3 percent) to the City of Berkeley from UC Berkeley to fund BFD and other City services.

Berkeley Fire Department

BFD provides fire protection and emergency medical services (EMS) in the City of Berkeley and to UC Berkeley properties. BFD divides Berkeley into seven fire response districts, each of which has one fire station; the project is located in Fire Response District 2 and the closest fire station is #2, located just northwest of the project site at 2029 Berkeley Way. BFD provides 24-hour response for emergencies, including fire suppression, medical emergencies, hazardous materials events, and other life-threatening situations. When calls are received, a fire company and an ambulance are dispatched from the closest fire station with firefighters that are trained paramedics and emergency medical technicians. For hazardous materials events, BFD has a specially trained hazardous materials response team. BFD also supports these efforts with fire prevention, disaster preparedness, and public education programs, as well as training for all BFD staff.

City of Berkeley General Plan

The Berkeley General Plan Land Use (LU) Element has policies and an action that are relevant to fire protection services (City of Berkeley 2002):

- **Policy LU-36 University Impacts and Costs:** Minimize the negative impacts of the size of the university population and university expansion on adjacent neighborhoods and the city as a whole.
  - **Action B:** Explore methods by which the university would pay for municipal services "in lieu" of tax payments.

The Berkeley General Plan Disaster Preparedness and Safety Element also has policies and actions relevant to fire protection services:

- **Policy S-1 Response Planning:** Ensure that the City’s emergency response plans are current and incorporate the latest information on hazards, vulnerability, and resources.
  - **Action A:** Test, maintain, and revise the City’s disaster response plan(s) consistent with the California Standardized Emergency Management System (SEMS) and establish clear coordination of roles and expectations with the County Office of Emergency Services, the University of California, the Berkeley Unified School District, neighboring jurisdictions, and other agencies.
  - **Action B:** Designate and publicize evacuation routes, shelter locations, and emergency service locations (hospitals, fire stations, etc.) within the city and sub region. Include existing city pathways and other pedestrian rights-of-way in the published designated evacuation route map. Prioritize undergrounding of utilities for designated routes to make them more reliable.

- **Action D:** City departments shall conduct an appropriate level of staff training addressing emergency readiness, evacuation routes, first aid, staging areas and procedures, continuity of services, and response and recovery operations and including CERT training for all City employees.
- **Action F:** Prepare an annual report in consultation with the Fire Safety Commission and other relevant Commissions and Boards on the state of preparedness in Berkeley.
- **Action G:** Conduct coordinated planning and training between local and regional police, fire, and public health agencies in preparation for natural and man-made disasters, and ensure that the City's disaster response communication technologies are compatible with regional agency communication technologies.

- **Policy S-15 Construction Standards:** Maintain construction standards that minimize risks to human lives and property from environmental and human-caused hazards for both new and existing buildings.
- **Policy S-21 Fire Preventive Design Standards:** Develop and enforce construction and design standards that ensure new structures incorporate appropriate fire prevention features and meet current fire safety standards.
  - **Action A:** Strengthen performance review and code enforcement programs.
  - **Action B:** Promote the installation of built-in fire extinguishing systems and early warning fire alarm systems.
  - **Action C:** Maintain City standards for minimum width and vertical clearance and ensure that new driveways and roadways meet minimum standards of the Uniform Fire Code or subsequent standards adopted by the City.
  - **Action D:** Provide adequate water for fire suppression for new development in accordance with City standards for minimum volume and duration of flow.
  - **Action E:** Establish criteria for the installation of gas shutoff valves in new and existing construction, to reduce the risk of post-earthquake fires.
- **Policy S-22 Fire Fighting Infrastructure:** Reduce fire hazard risks in existing developed areas.
  - **Action B:** Evaluate existing access to water supplies for fire suppression. Identify, prioritize, and implement capital improvements and acquire equipment to improve the supply and reliability of water for fire suppression. Continue to improve the water supply for firefighting to assure peak load water supply capabilities. Continue to work with East Bay Municipal Utility District (EBMUD) to coordinate water supply improvements. Develop aboveground (transportable) water delivery systems.
  - **Action C:** Provide properly staffed and equipped fire stations and engine companies. Monitor response time from initial call to arrival and pursue a response time goal of four minutes from the nearest station to all parts of the city. Construct a new hill area fire station that has wildland firefighting equipment and ability.
- **Policy S-23 Property Maintenance:** Reduce fire hazard risks in existing developed areas by ensuring that private property is maintained to minimize vulnerability to fire hazards.
  - **Action A:** Continue and expand existing vegetation management programs.
  - **Action B:** Property owners shall be responsible for maintaining their structures at a reasonable degree of fire and life safety to standards identified in adopted codes and ordinances.
  - **Action E:** Require bracing of water heaters and gas appliances and the anchoring of houses to foundations to reduce fire ignitions following earthquakes.
- **Policy S-24 Mutual Aid:** Continue to fulfill legal obligations and support mutual aid efforts to coordinate fire suppression within Alameda and Contra Costa Counties, Oakland, the East Bay Regional Park District, and the State of California to prevent and suppress major wildland and urban fire destruction.

ENVIRONMENTAL SETTING

University Fire Prevention

UC Berkeley does not have its own fire department or firefighting capabilities. For emergencies, UC Berkeley relies on response from BFD, Oakland Fire Department (OFD), Moraga-Orinda Fire District, Alameda County Fire Department (ACFD), East Bay Regional Park District, and/or California Department of Forestry and Fire Protection (CAL FIRE), depending on the area and severity of impact, and closest first responders available. UC Berkeley also works closely with internal and external fire management partners related to regional wildfire prevention, including the Hills Emergency Forum, Diablo Firesafe Council, and various neighborhood groups and internal interdisciplinary planning teams.

UC Berkeley's Office of Environment, Health & Safety, staffed by health and safety professionals and hazardous materials technicians, provides inspections, plan review, and code consultation for fire prevention in all UC Berkeley–owned and -occupied buildings. The UC Berkeley Fire Prevention Division operates under UC Berkeley's Office of Environment, Health & Safety. The Fire Prevention Division operates under a Memorandum of Understanding with the State Fire Marshal to provide inspections, plan review, and code consultation for UC Berkeley–owned and -occupied buildings. The Fire Prevention Division operates under the direction of the Campus Fire Marshal. In the event of a fire-related emergency, it is UC Berkeley policy to notify UCPD, which will contact BFD. Fire-related response and mitigation efforts are coordinated primarily between UCPD, BFD, and the Campus Fire Marshal (UC Berkeley 2017).

In addition, the Office of Environment, Health & Safety responds to hazardous materials incidents reported on campus. Response times vary depending on the nature of the incident and nature and time of the spill. In the infrequent cases when outside assistance is required, UC Berkeley may request assistance from other nearby agencies, such as BFD and ACFD, or from emergency response contractors.

Berkeley Fire Department

BFD provides fire protection and EMS in the City of Berkeley and UC Berkeley campus. BFD divides Berkeley into seven fire response districts, each of which has one fire station. BFD also has a Division of Training Office, an Administration Office, a Fire Warehouse, and Water Rescue. The City of Berkeley identified 153 full-time-equivalent fire department employees in 2022 (City of Berkeley 2023a). The Berkeley Fire Department's seven stations, Division of Training, Administrative Offices, warehouse, and water rescue are at the following locations (City of Berkeley 2023b):

- Station 1: 2442 Eighth Street
- Station 2: 2029 Berkeley Way
- Station 3: 2170 Russell Street
- Station 4: 1900 Marin Avenue
- Station 5: 2680 Shattuck Avenue
- Station 6: 999 Cedar Street
- Station 7: 3000 Shasta Road
- Division of Training: 997 Cedar Street
- Fire Administration: 2100 Martin Luther King Jr. Way
- Fire Warehouse: 1011 Folger Avenue
- Water Rescue: Berkeley Marina

The project site is located within the service area for Fire Response District 2 (Station 2) (City of Berkeley 2014). BFD provides 24-hour response for emergencies, including fires, medical emergencies, hazardous materials events, water rescues, disaster response, and other life-threatening situations (City of Berkeley 2023c).

Wildland Fire Hazards

UC Berkeley participates in the Hills Emergency Forum or HEF, the goal of which is to coordinate the collection, assessment, and sharing of information regarding East Bay Hills fire hazards and to build interagency consensus on the development of fire safety standards and codes, incident response and management protocols, public education programs, multi-jurisdictional training, and fuel reduction strategies (HEF 2022). Member agencies of the Hills Emergency Forum include the City of Berkeley, City of El Cerrito, City of Oakland, CAL FIRE, East Bay Municipal Utility District, East Bay Regional Park District, Lawrence Berkeley National Laboratory, Moraga-Orinda Fire District, and UC Berkeley. The project site is not located within lands classified by CAL FIRE as Very High Fire Hazard Zones (CAL FIRE 2023). Wildfire hazards are discussed in more detail in Chapter 3.16, "Wildfire," of this Draft EIR. UC Berkeley also works closely with other fire management partners for regional wildfire prevention, including the Diablo Firesafe Council and various neighborhood groups and internal interdisciplinary planning teams.

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

Evaluation of potential fire protection service impacts is based on a review of documents pertaining to the project and field review of the project study area and surroundings. Impacts on fire protection services that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

Thresholds of Significance

The project would result in a significant impact related to fire protection services if it would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 fire protection services.

Impact Analysis

Impact 3.13-1: Implementing the project would not result in substantial adverse physical construction-related impacts associated with the provision or the need for new or physically altered fire protection facilities, to maintain acceptable service ratios.

Fire protection and emergency medical services would be provided to the project by BFD. As described above, while UC Berkeley has a Fire Prevention Division that provides inspections, plan review, and code consultation, it relies on BFD for fire response services and EMS within Berkeley city boundaries; these services are coordinated between UCPD, BFD, and UC Berkeley's Campus Fire Marshal. The project would be constructed on existing UC Berkeley property within an urban setting. According to the CEQA Guidelines, CEQA is not concerned with public safety response levels themselves, but with the physical impacts to the environment that are caused from potential construction or modification of facilities in order to maintain the public safety response levels.

As described in Chapter 2, "Project Description," there are currently 16 existing employees on the project site. With implementation of the project, the South Building would provide space for permanent occupancy of up to 340 employees, and the North Building would provide space for permanent occupancy of up to 750 employees, resulting in 1,074 net new employees on the project site. While this increase in jobs could result in an increased demand for fire protection services, the increase in demand for fire protection services would not require any new or expanded facilities in order for BFD to maintain acceptable service ratios. Further, project development is anticipated in UC Berkeley's current campus population projections and falls within the Plan Bay Area 2050's projection of employment growth for the project area. Therefore, implementation of the project would not induce substantial unplanned population growth either directly or indirectly that would require an expansion of BFD's services.

To ensure that BFD is able to continue to adequately serve UC Berkeley while maintaining acceptable service ratios and outcomes citywide, as part of the project, UC Berkeley would implement the following public services (PS) CBP:

- **CBP PS-2:** UC Berkeley will continue its partnership with the Lawrence Berkeley National Laboratory, Alameda County Fire Department, OFD, and Berkeley Fire Department to ensure adequate fire and emergency service levels to UC Berkeley facilities. This partnership will include consultation on the adequacy of emergency access routes to all new UC Berkeley buildings. UC Berkeley will also continue to work closely with external fire management partners related to regional wildfire prevention, including the Hills Emergency Forum, Diablo Firesafe Council, and various neighborhood groups and internal interdisciplinary planning teams.

CBP PS-2 would reduce potential impacts to fire protection services through coordination between the various fire prevention resources in the project area, as coordinated efforts increase resources available from multiple sources instead of only relying on one. The ongoing implementation of CBP PS-2, and the UC Berkeley Long-Range Development Plan (LRDP) CBPs, would not create additional impacts to fire protection services. The activities associated with these CBPs would not involve physical effects that would have the potential to create significant environmental impacts.

In addition, the project would be required to comply with applicable codes, such as the CFC, CBC, California Health and Safety Code, and CCR Title 8, pertaining to fire prevention. Compliance with such policies ensures that the project's buildings would incorporate fire mitigation components to reduce risks, which in turn reduces pressure on local emergency resources.

The project would not create demand for new fire services such that new or expanded facilities would be needed because the anticipated new employment opportunities are within the projections identified in the 2021 LRDP and Plan Bay Area 2050. If, in the future, BFD requires new or expanded facilities in order to serve UC Berkeley properties, UC Berkeley will continue to partner with BFD and other service providers to ensure the continued adequacy of fire protection services. However, as determined under City of Hayward v. Trustees of the California State University (242 Cal.App.4th [2015]), it is not UC Berkeley's responsibility to build a new fire station, but only to pay its proportional share to mitigate the physical impacts of construction of such facilities if they are determined necessary as a result of the project. In the 2021 Settlement Agreement with the City of Berkeley, UC Berkeley commits in concept to assisting the City in its development of a new fire station by contributing land off of the Campus Park owned by UC Berkeley as of July 2021 and suitable for the development of a City fire station intended to serve the City and campus communities (UC Berkeley 2021). UC Berkeley and the City will engage in cooperative joint planning for a potential fire station with or without this project. Therefore, if the City of Berkeley would decide to construct a new facility in order to accommodate additional resources, UC Berkeley would negotiate its proportional share of funding for the mitigation of any environmental impacts resulting from the construction of the facility.

Because the project would not result in an increase in demand for fire protection services that would necessitate construction of new or physically altered fire protection facilities that would result in substantial adverse physical construction-related impacts, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.13.2 Police Services

REGULATORY SETTING

Federal

No federal plans, policies, regulations, or laws are applicable to the provision of police services for the project.

State

No state plans, policies, regulations, or laws are applicable to the provision of police services for the project.

University of California

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley campus built environment. The Campus Design Standards, along with applicable codes and policies, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing UC Berkeley buildings, infrastructure, grounds, and maintenance.

UCPD completes a plan review of proposed UC Berkeley buildings to maximize public safety features in and around proposed buildings. UC Berkeley's design review process, included in the Campus Design Standards, requires electronic safety and security systems, such as card access controls, intrusion detection, and emergency communications, to be coordinated with UCPD systems and requirements.

UC Berkeley Continuing Best Practices

UC Berkeley applies CBPs relevant to public services as part of the project approval process. CBPs that would be implemented as part of the project are identified in Chapter 2, "Project Description," and in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR. Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operation, are identified and assessed for their potential to reduce adverse physical impacts later in the "Impact Analysis" section, below.

Local

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations whenever using property under its control in furtherance of its educational purposes. Local plans, policies, and regulations are not considered in the assessment of police protection impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of police protection impacts. Therefore, local plans, policies, and regulations are not provided herein.

ENVIRONMENTAL SETTING

University of California Police Department

UC Berkeley has its own police department, UCPD. While the primary jurisdiction of UCPD is UC Berkeley-controlled properties, officers have authority for conducting criminal investigations and making arrests anywhere in the State of California. The department handles all patrol, investigation, crime prevention education, and related law enforcement duties for the UC Berkeley community, with services provided 24 hours per day, seven days a week. In addition, UCPD operates with assistance from and in coordination with the Berkeley Police Department (BPD) through an operational agreement. This partnership includes interoperative radio capability, joint police records computer system, training programs, special events coordination, and investigation of serious incidents.

UCPD operates a Community Service Officer Program and a Security Patrol Officer Program that do not have arrest authority. The Community Service Officer Program has a staff of approximately 60 part-time student employees and offers services including BearWALK, a night safety escort service, to students, faculty, and staff; nighttime patrol of residence halls and libraries; traffic control and assistance for football games; fire trail and Hill Campus patrol; and supplemental presence at concerts, sporting venues, and special events (UCPD 2023). The Security Patrol Officer Program provides nonsworn, uniformed officers at UC Berkeley facilities to provide security and safeguard UC Berkeley property.

UCPD is based at 1 Sproul Hall at the southern edge of the Campus Park. As part of the on-campus safety program, between 700 and 900 emergency phones that connect to UCPD dispatch, which are illuminated at all hours by a blue light, are spread throughout campus in public areas (UC Berkeley 2023a). UCPD currently has 46 police officers, 3 police trainees, and 100 full time employees (Breines, pers. comms., 2023).

Berkeley Police Department

As described above, BPD provides services throughout the City of Berkeley, including in conjunction with UCPD for UC Berkeley properties. The BPD station is at 2100 Martin Luther King Jr. Way in Downtown Berkeley, approximately 0.35 mile west of the project site. BPD comprises several divisions, including the Traffic Unit, Records Unit, Jail Facility, Property and Evidence Room, and Community Services Bureau. The City of Berkeley identified approximately 135 police officers (approximately 1.1 officers per 1,000 inhabitants) and 288 full-time equivalent (FTE) employees (approximately 2.3 FTE employees per 1,000 inhabitants based on a population of 123,188 in 2022 (City of Berkeley 2023a, DOF 2023).

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

Evaluation of potential police protection service impacts is based on a review of documents pertaining to the project; consultation with UCPD; and field review of the project study area and surroundings. Impacts on police services that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

Thresholds of Significance

The project would result in a significant impact related to police protection services if it would:

- result in substantial adverse physical impacts with the provision of new or physically altered governmental facilities, or the 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 police protection service.

Impact Analysis

Impact 3.13-2: Implementing the project would not result in substantial adverse physical construction-related impacts associated with the provision or the need for new or physically altered police protection facilities, to maintain acceptable service ratios.

The project site is currently served by UCPD and BPD, and police services for the project site would primarily be provided by UCPD. UCPD currently employs 46 sworn officers, with 3 new police trainees on board since the end of 2023. In total, UCPD has approximately 100 full-time employees.

The project would result in the addition of up to 1,074 new employment opportunities, in keeping with UC Berkeley campus population projections and with regional employment projections. The increase in employment associated with the project would represent a more intense use of the project site. While this increase in population at the project site could result in an increase in demand for police services, UCPD has confirmed that the project would not trigger the need for new facilities, the construction of which could cause significant environmental impacts (Breines, pers. comms., 2023).

BPD does not use a ratio-based approach to determine adequate staffing levels, but citywide, the average rate of sworn police officers is approximately 1.1 per 1,000 inhabitants, and the average rate of all FTE employees is approximately 2.3 per 1,000 inhabitants. While the project would increase the number of employees and the level of activity on the project site, an increase of up to 1,074 new employees would not substantially change the existing ratio of officers per 1,000 inhabitants. In addition, given that the site is currently surrounded by residential and commercial land uses and would be developed primarily for laboratory and office uses, it is reasonable to expect that the project would not result in activities that would create a meaningful increase in the need for police services from BPD in the area.

Because the development could indirectly result in some population growth in the City of Berkeley, and UC Berkeley receives police services from BPD as well as UCPD, as part of the project, UC Berkeley would implement the following public services (PS) CBP:

- **CBP PS-1**: The University of California Police Department will continue its partnership with the City of Berkeley police department to review service levels in the City Environs Properties.

The ongoing implementation of CBP PS-1 would minimize potential impacts to police services through coordination between UCPD and BPD.

Because the project would not result in the need for new or additional police services and would not require new or physically altered police facilities, the impact on police services would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.13.3 Schools

REGULATORY SETTING

Federal

No federal plans, policies, regulations, or laws are applicable to the provision of education services for the project.

State

California Code of Regulations

The California Code of Regulations, Title 5 Education Code, governs all aspects of public education within the state.

Senate Bill 50

Senate Bill (SB) 50 (funded by Proposition 1A, approved in 1998) limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 state and local school facilities funding match. SB 50 also provides for three levels of statutory impact fees. The maximum allowable fee is $3.79 per square foot for residential development and $0.61 per square foot for commercial and industrial development. In setting the fees, school districts must prepare nexus studies to demonstrate a reasonable connection between new development and the need for school improvements. The fees may only be used to finance the construction or modernization of school facilities. The fee application level depends on whether state funding is available, whether the school district is eligible for state funding, and whether the school district meets certain additional criteria involving bonding capacity, year-round school, and the percentage of moveable classrooms in use.

SB 50 amended California Government Code Section 65995, which contains limitations on Education Code Section 17620, the statute that authorizes school districts to assess development fees within school district boundaries. Government Code Section 65995(b)(3) requires the maximum square footage assessment for development to be increased every two years, according to inflation adjustments. On January 22, 2014, the State Allocation Board approved increasing the allowable amount of statutory school facilities fees (Level I School Fees) from $3.20 to $3.36 per square foot of assessable space for residential development of 500 square feet or more, and from $0.51 to $0.54 per square foot of chargeable covered and enclosed space for commercial/industrial development. According to California Government Code Section 65995(3)(h), the payment of statutory fees is "deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization… on the provision of adequate school facilities." The school district is responsible for implementing the specific methods for mitigating school impacts under the Government Code.

Local

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations whenever using property under its control in furtherance of its educational purposes. Local plans, policies, and regulations are not considered in the assessment of impacts to schools in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of impacts to schools. Therefore, local plans, policies, and regulations are not provided herein.

ENVIRONMENTAL SETTING

Public K–12 schools in the City of Berkeley are part of the Berkeley Unified School District (BUSD). BUSD serves all residents of Berkeley, including more than 9,000 students across 11 elementary schools, 3 middle schools, a comprehensive high school, and an alternative high school. BUSD also has 3 preschools and an adult school serving several thousand more students each year (BUSD 2023). The nearest public K-12 schools to the project site include Washington Elementary School at 2300 Martin Luther King Jr. Way, 0.4 mile from the Campus Park; and Berkeley High

School at 1980 Allston Way, 0.2 mile west of the Campus Park. Additional BUSD schools are located throughout Berkeley. Table 3.13-1 below shows enrollment data in BUSD between the 2016–17 academic school year and the 2022–23 academic school year. Overall enrollment has decreased over the last seven years by a total of 1,166 students.

Table 3.13-1 Berkeley Unified School District Enrollment Data

Academic Year	Total	Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
2022-23	9,073	717	599	590	662	644	617	644	644	662	807	817	835	817
2021-22	9,177	679	578	661	642	624	661	642	670	716	808	826	808	881
2020-21	9,409	659	668	677	639	668	687	649	715	715	819	800	837	875
2019-20	9,844	817	719	660	699	699	728	728	728	738	807	847	847	827
2018-19	10,194	856	663	703	724	724	754	714	775	765	877	938	866	816
2017-18	10,340	796	703	734	744	776	713	786	765	807	951	879	817	879
2016-17	10,239	758	706	727	778	717	747	747	788	840	870	809	870	891

Source: California Department of Education 2023.

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

Evaluation of potential impacts to schools is based on a review of documents pertaining to the project and field review of the project study area and surroundings. Impacts on school services that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

Thresholds of Significance

The project would result in a significant impact related to schools if it would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 schools.

Impact Analysis

Impact 3.13-3: Implementing the project would not result in substantial adverse physical construction-related impacts associated with the provision or the need for new or physically altered school facilities, to maintain acceptable service ratios.

As noted above, school services in Berkeley are provided by BUSD, which serves more than 9,000 students across 11 elementary schools, 3 middle schools, a comprehensive high school, and an alternative high school. BUSD also has 3 preschools and an adult school serving several thousand more students each year (BUSD 2023). The nearest public K-12 schools to the project site include Washington Elementary School at 2300 Martin Luther King Jr. Way, 0.4 mile from the Campus Park; and Berkeley High School at 1980 Allston Way, 0.2 mile west of the Campus Park.

While the project would not result in the development of housing that could directly result in an increase in demand for school services, the increase in employment opportunities within the City of Berkeley could result in indirect effects to schools, as a small number of employees (with school-aged children) may choose to move to the City to be closer to their work location. The project would result in up to 1,074 new employment opportunities, which are within the UC Berkeley 2021 LRDP and Plan Bay Area 2050's projections for employment growth at the University and within the region, respectively. It is anticipated that that the majority of project employees already live in the San Francisco

Bay Area, and that the number of net new employees that would choose to relocate to the City would not be substantial enough to generate unplanned population growth and result in a substantial increase in the demand for school services. Furthermore, families of employees that do not reside in the City of Berkeley would not easily be able to send their children to school at BUSD schools, as they would be required to request an inter-district transfer from their school district if they wish to send their school-aged children to schools in Berkeley (BUSD 2024). Inter-district transfers are considered only after Berkeley residents are placed (BUSD 2024).

As shown in Table 5.13-1, Berkeley Unified School District Enrollment Data, enrollment in BUSD has been decreasing over the last seven years by a total of approximately 1,166 students. Because of this downward trend, it is likely that any indirect increase in enrollment in BUSD related to the project would be within school capacity levels as determined by previous enrollment levels in 2015, and BUSD could accommodate any potential nominal increase in students. Furthermore, any school-aged children associated with the additional employees from buildout of the project who would reside in Berkeley would likely attend various schools throughout the BUSD and would not impact one individual school.

Because implementing the project would not result in substantial population growth and existing schools within BUSD have available capacity, the increase in employment population associated with the project would not result in a substantial increase in the demand for public school services or require the construction or expansion of educational facilities. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.13.4 Libraries

REGULATORY SETTING

Federal

No federal plans, policies, regulations, or laws are applicable to the provision of library services for the project.

State

No state plans, policies, regulations, or laws are applicable to the provision of library services for the project.

University of California

Library Strategic Plan 2017-2021

UC Berkeley's Library Strategic Plan 2017–2021 provides guidance for continual enhancement of the UC Berkeley Library in order to maximize resources provided to UC Berkeley students, staff, and faculty. The Strategic Plan contains four main directions: to improve how scholars access resources; help develop emerging areas of scholarship; grow as an adaptive learning organization; and tell a story to build community and cultivate relationships. The strategies for accomplishing these main directions include adopting new strategies for purchasing, licensing, and preserving materials; increasing digitalization; supporting emerging areas of research; and providing the public community with a rich array of opportunities for learning, research, and enrichment.

Local

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations whenever using property under its control in furtherance of its educational purposes. Local plans, policies, and regulations are not considered in the assessment of impacts to libraries in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of impacts to libraries. Therefore, local plans, policies, and regulations are not provided herein.

ENVIRONMENTAL SETTING

University Library

The UC Berkeley Library is a system consisting of 24 libraries throughout the campus, the collections of which comprise more than 13 million volumes:

- Anthropology
- Art History and Classics
- Bancroft
- Bioscience, Natural Resources, and Public Health
- Business
- Chemistry
- Doe
- Earth Sciences and Map
- East Asian
- Engineering
- Environmental Design
- Graduate Services
- Main (Gardner) Stacks
- Mathematics and Statistics
- Media Resources Center
- Moffitt
- Morrison
- Music
- Newspapers and Microforms
- Northern Regional Library Facility
- Optometry
- Physics and Astronomy
- Social Research
- South and Southeast Asia

In addition, the UC Berkeley Library has nine affiliated libraries:

- BAMPFA Film
- CED Visual Resources Center
- Environmental Design Archives
- Ethnic Studies
- Governmental Studies
- Law
- Robbins Collection
- Transportation Studies
- Earthquake Engineering

Berkeley Public Library

The City of Berkeley operates five branches of the Berkeley Public Library at the following locations (Berkeley Public Library 2023):

- Central Library: 2090 Kittredge Street (closest to the project site; approximately 0.2 mile to the west),
- Claremont Branch: 2940 Benvenue Avenue,
- North Branch: 1170 The Alameda,
- Tarea Hall Pittman South Branch and Tool Lending Library: 1901 Russell Street, and
- West Branch: 1125 University Avenue.

Services that the Berkeley Public Library offers to the community include access to books, magazines, and newspapers; free WiFi and computer access; meeting rooms and private study rooms; a Tool Lending Library for Berkeley residents and property owners; virtual book access; adult literacy programs; and community programs such as various cultural celebrations, film programs, and story times for children and families (Berkeley Public Library 2018). As of 2018, the number of registered borrowers with Berkeley Public Library was 110,100 (Berkeley Public Library 2018). The City of Berkeley identified 115 full-time-equivalent employees for libraries in 2022 (City of Berkeley 2023a).

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

Evaluation of potential impacts to libraries is based on a review of documents pertaining to the project and field review of the project study area and surroundings. Impacts on libraries that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

Thresholds of Significance

The project would result in a significant impact related to libraries if it would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 libraries.

Impact Analysis

Impact 3.13-4: Implementing the project would not result in substantial adverse physical construction-related impacts associated with the provision or the need for new or physically altered library facilities, to maintain acceptable service ratios.

As noted above, library services for the project site are provided both by UC Berkeley and the City of Berkeley. The project does not include new housing that would directly generate population growth resulting in an increase in demand for library services. However, the project would result in up to 1,074 new employment opportunities, which could result in a small increase in demand for library services on-and off-campus. With 24 libraries across campus, and nine affiliated libraries, UC Berkeley provides substantial library services to the UC Berkeley population. Because most UC Berkeley libraries are open to the public, the project could result in an increase in the demand for on-campus library facilities. However, the anticipated growth in employment associated with the project is within UC Berkeley campus population projections identified in the 2021 LRDP and the increase in demand for library services is expected to be minimal.

The City of Berkeley also provides library services at 6 facilities throughout the City. The public library nearest to the project site is the Central Library, located approximately 0.2 mile west of the project site. The anticipated increase in employment within the City Environs resulting from the project could also result in a minor increase in the demand for City of Berkeley library resources. However, as noted above, this increase would not be substantial enough to necessitate new or expanded library facilities.

The project would not include new housing that would directly result in population growth that could increase the demand for library services. The increase in employment within the City is unlikely to result in a substantial increase in demand for libraries. New employees would have access both to City and UC Berkeley libraries, which have adequate capacity to service the small project related increase in demand. Therefore, the project would not result in a substantial increase in library use or require the construction of new facilities. As such, implementation of the project would not require the construction of new or expanded library facilities that could result in environmental impacts, and this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.13.5 Parks and Recreation

REGULATORY SETTING

Federal

No federal plans, policies, regulations, or laws are applicable to the provision of parks and recreation for the project.

State

No state plans, policies, regulations, or laws are applicable to the provision of parks and recreation for the project.

University of California

Physical Design Framework

The 2009 UC Berkeley Physical Design Framework guides land use, landscape and open space, and architectural design for UC Berkeley. It acknowledges that UC Berkeley's open spaces provide an important resource for relaxation, recreation, and interaction. The Physical Design Framework's principles regarding landscape and open space as they pertain to parks and recreation include preserving natural areas and open spaces within the Campus Park for these purposes.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing UC Berkeley buildings, infrastructure, grounds, and maintenance issues.

Local

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations whenever using property under its control in furtherance of its educational purposes. Local plans, policies, and regulations are not considered in the assessment of parks and recreation impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of parks and recreation impacts. Therefore, local plans, policies, and regulations are not provided herein.

ENVIRONMENTAL SETTING

University Parks and Recreation Resources

UC Berkeley provides a variety of active and passive recreational facilities for its students, staff, faculty, and visitors. This includes open spaces, gymnasiums, sports fields, and an aquatic complex. These resources are located throughout the Campus Park, the Hill Campus West, the Hill Campus East, the Clark Kerr Campus, and the City Environs.

Open Space

UC Berkeley's open spaces include natural and green spaces, such as glades, lawns, and riparian areas along Strawberry Creek, as well as sidewalks, paths, and plazas, which provide for passive recreational use. Currently, UC Berkeley has approximately 187 acres of open space throughout the campus, excluding informal recreational space in the Hill Campus East, such as fire roads that are also used as hiking trails. UC Berkeley also has student run rooftop gardens which are not included in these numbers, but further contribute to UC Berkeley's total open space area.

There are a total of 60 primary and secondary open space and recreational areas within UC Berkeley campus and the City Environs land use zone, including the approximately 50 acres of formal athletics and recreational space with approximately 27 acres of established athletics fields and outdoor areas and approximately 975,000 gross square feet of indoor facilities. The UC Berkeley parks and recreational facilities closest to the project site include the West Crescent Lawn, Grinnell Natural Area & Eucalyptus Grove, Hellman Tennis Center, Edwards Stadium, and Evans Diamond at Stu Gordon Stadium (baseball) which are all located adjacent to the project site, across Oxford Street.

City of Berkeley Parks and Recreation

The City of Berkeley maintains approximately 250 acres across 52 parks. In addition, it maintains 15 athletic fields, 49 sports courts, 4 community centers, 2 clubhouses, 29 restrooms and outbuildings, 36 picnic areas as well as the largest public marina in the Bay Area (City of Berkeley 2023a). With UC Berkeley's central location in the City, many of the City's parks are within about a mile of the Campus Park. The City of Berkeley identified approximately 160 full-time-equivalent employees for Parks, Recreation, and Waterfront (City of Berkeley 2023a).

The Berkeley community, the Parks and Recreation Commission, the Waterfront Commission, Adopt-a-Park groups, and the citywide Berkeley Partners for Parks play key roles in maintaining and enhancing the City's parks and open spaces (City of Berkeley 2002).

The City's recreational facilities and parks near the project site include Martin Luther King Jr. Civic Center Park, approximately 0.3 mile southwest of the project site, and Ohlone Park, approximately 0.3 mile northwest of the project site.

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

Evaluation of potential impacts related to parks and recreation is based on a review of documents pertaining to the project and field review of the project study area and surroundings. Impacts on parks and recreational services that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

Thresholds of Significance

The project would result in a significant impact related to parks and recreation if it would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 parks services;
- 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; or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Impact Analysis

Impact 3.13-5: Implementing the project would not result in substantial adverse physical construction-related impacts associated with the provision or the need for new or physically altered parks, to maintain acceptable service ratios.

As noted above, parks and recreation services are provided at the project site by both UC Berkeley and the City of Berkeley Parks and Recreation Department. As described in Chapter 2, "Project Description," the project site consists of approximately 200,000 square feet of existing buildings on-site and takes up more than half of a block in Downtown Berkeley. The project would demolish all of the existing buildings and construct two new buildings and other collaborative meeting spaces, including a linear-shaped courtyard, approximately 40 feet wide and 200 feet long, between and connecting the South and North Buildings. The courtyard would provide landscaping and seating for building occupants and would be open to the public during daylight hours.

The project does not include housing development. Therefore, the project would not directly result in population growth that would increase the demand for parks and recreational facilities. However, the project would result in a net increase of up to 1,074 employment opportunities, which could result in an increase in demand for parks and recreation services within and surrounding the UC Berkeley campus.

While the project could spur some project employees to relocate to the City of Berkeley, it is expected that many already live in the Bay Area and would continue to utilize park and recreational facilities closer to where they reside. However, some employees that reside outside of the City of Berkeley may choose to take advantage of parks and recreational facilities near the project site. Due to the project site's proximity to the UC Berkeley campus, it is expected that new employees would primarily utilize UC Berkeley's recreational facilities, which include 187 acres of open space and 50 acres of formal athletic and recreational space, including nearby amenities such as the West Crescent Lawn, Grinnell National Area & Eucalyptus Grove. Project employees also may use City of Berkeley facilities, such as Martin Luther King Jr. Civic Center Park, approximately 0.3 mile southwest of the project site, and Ohlone Park, approximately 0.3 mile northwest of the project site. UC Berkeley and City facilities have the capacity to absorb the small increase in demand for services that would result from the project without the need for new or expanded parks or recreational facilities.

Because the project would not directly result in any substantial increase in population in the City, and new potential users of park and recreational amenities associated with the project would not substantially increase the use of park or recreational facilities, the project would not require new facilities to be built. Therefore, implementation of the project would not result in substantial adverse physical construction-related impacts associated with the provision or the need for new or physically altered parks. The impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.13-6: Implementing the project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

As described under Impact 3.13-5, while the project likely would not directly result in an increase in the City's residential population, employees at the project could utilize local park and recreational facilities, resulting in a small increase in demand for these services. Project employees would likely use UC Berkeley's numerous recreational facilities because of their proximity to the project site; the existing UC Berkeley recreational facilities are anticipated to be able to absorb parks and recreational demands from the project. Additionally, any increase in demand is not expected to be concentrated on any single recreational facility such that usage from the building occupants would lead to the deterioration of parks and recreational facilities. Therefore, the project would not increase the use of existing parks and recreational facilities such that substantial physical deterioration would occur or be accelerated, and impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.13-7: Implementing the project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

As described in Impact 3.13-5, the project would include a courtyard, approximately 40 feet wide and 200 feet long, between and connecting the South and North Buildings. The courtyard would provide landscaping and seating for building occupants and would be open to the public during daylight hours. The environmental impacts associated with the construction of the courtyard are evaluated throughout this EIR and subject to the CBPs and mitigation measures described in this EIR, including but not limited to Section 3.2, "Air Quality," Section 3.3, "Biological Resources," Section 3.7, "Greenhouse Gas Emissions," and Section 3.9, "Hydrology and Water Quality." As analyzed in Impact 3.13-5, the project would not require new recreational facilities to be built because existing UC Berkeley facilities are anticipated to be able to absorb parks and recreational demands resulting from the project. The project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. Therefore, the impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.14 TRANSPORTATION

This section describes the existing transportation system in the vicinity of the project site and evaluates the potential impacts on the system associated with implementation of the project. Roadway, transit, bicycle, and pedestrian components of the overall transportation system are included in the analysis. Impacts are evaluated under near-term (present-day) conditions with and without the project, and cumulative (year 2036) conditions with project. The traffic analysis focuses on a specific project transportation study area for transportation and circulation, which is defined in Section 3.14.2, "Environmental Setting," below.

The Alameda County Transportation Commission (CTC) responded to the notice of preparation (NOP) of the EIR with comments regarding the suggested content and analysis methodology to be included in the transportation analysis. The comments are addressed in this section as appropriate. A copy of the NOP and comments received in response to the NOP are contained in Appendix A.

3.14.1 Regulatory Setting

FEDERAL

There are no federal plans, policies, regulations, or laws related to transportation applicable to the project.

STATE

California Environmental Quality Act

CEQA generally requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of proposed projects, and to reduce those environmental impacts to the extent feasible. The State CEQA Guidelines Section 15064.3 describes specific considerations for determining a project's transportation impacts. Generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts. For the purposes of this section, VMT refers to the total distances of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and nonmotorized travel. The legislative action that led to the July 1, 2020, changes to CEQA in order to update how transportation impacts are measured was California Senate Bill (SB) 743.

California Senate Bill 743

On September 27, 2013, SB 743 was signed into law, building on legislative changes from SB 375, AB 32, and AB 1358. SB 743 began the process to modify how impacts to the transportation system are assessed for purposes of CEQA compliance. SB 743 created a shift in transportation impact analysis under CEQA from a focus on automobile delay, as measured by level of service and similar metrics, to a focus on reducing VMT.

SB 743 also includes amendments that revise the definition of "infill opportunity zones" to allow cities and counties to opt out of traditional level-of-service standards established by congestion management agencies and require the Governor's Office of Planning and Research (OPR) to update the State CEQA Guidelines and establish criteria for determining the significance of transportation impacts. The statute states that upon certification of the new criteria, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA, except in certain locations specifically identified in the new criteria.

The new criteria in the State CEQA Guidelines Section 15064.3 were certified and adopted in December 2018. Section 15064.3 states that VMT is the most appropriate metric to assess transportation impacts and that, with limited exceptions, a project's effect on automobile delay does not constitute a significant environmental impact. These provisions applied statewide effective July 1, 2020.

In addition to updating the State CEQA Guidelines, OPR prepared additional technical guidance in Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018). The Technical Advisory provides background on the intent of SB 743, technical considerations in the selection of VMT metrics, methodology, and significance thresholds, criteria which could be used to screen projects out from a VMT impact analysis, and information on VMT mitigation.

UNIVERSITY OF CALIFORNIA

UC Sustainable Practices Policy

The UC Sustainable Practices Policy lays out sustainability goals and strategies for all UC system campuses and medical centers and covers climate and energy, transportation, water, green building, waste, food, and operations. This policy has been revised several times, the most recent version became effective in July 2023, which replaced the former goal of achieving carbon neutrality for Scopes 1 and 2 by 2025 with a new set of targets and requirements aligned with state goals in the 2022 CARB Scoping Plan of achieving carbon neutrality by 2045. As a part of that goal, UC recognizes that single-occupant-vehicle (SOV) commuting is a primary contributor to commute greenhouse gas (GHG) emissions and localized transportation impacts, and has set the following goals related to transportation:

- By 2025, each location shall strive to reduce its percentage of employees and students commuting by SOV by 10 percent relative to its 2015 SOV commute rates.
- By 2050, each location shall strive to have no more than 40 percent of its employees and no more than 30 percent of all employees and students commuting to the location by SOV.

Each location (university) will develop a business-case analysis for any proposed parking structures serving university affiliates or visitors to campus to document how a capital investment in parking aligns with each university's Climate Action Plans and/or sustainable transportation policies.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. Key sections of the Campus Design Standards relevant to transportation include bicycle infrastructure and standards for bus stops.

UC Berkeley Sustainability Plan

UC Berkeley created the Sustainability Plan to provide more detail on goals and strategies that will be implemented to meet the UC Sustainable Practices Policy. The UC Berkeley Sustainability Plan includes the following goal, which exceeds the UC Sustainable Practices Policy:

- Reduce employee drive alone rate to 36 percent by 2025.

The UC Berkeley Sustainability Plan provides the following key strategies to meet this goal:

- Expand and market a comprehensive environmentally sustainable, safe, accessible, and equitable multi-modal transportation program to reduce parking demand and carbon emissions and increase sustainable commute and intra-campus travel.
- Support campus housing initiative that includes new student and other campus housing within walking distance and transit to campus.
- Update the Campus Bicycle Plan.
- Participate in efforts to evaluate expansion of telework options for employees.
- Promote AC Transit route planning, services, and amenities to increase campus ridership.
- Support continuing activities to strengthen active transportation options.

- Implement strategies identified in the new campus Long Range Development Plan/Environmental Impact Report and Campus Master Plan (expected 2021).

UC Berkeley Continuing Best Practices

UC Berkeley applies continuing best practices (CBPs) relevant to transportation as part of the project approval process. Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified in Chapter 2, "Project Description," and assessed for their potential to reduce adverse physical impacts later in this section under Section 3.14.3, "Impact Analysis and Mitigation Measures." A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

REGIONAL

Plan Bay Area 2050

California's 2008 SB 375 requires each of the state's 18 metropolitan areas to develop a sustainable communities strategy (SCS), which is an integrated transportation, land use, and housing plan that addresses ways to accommodate future population growth and reduce GHG emissions from cars and light trucks. The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) jointly approved *Plan Bay Area* on July 18, 2013, with an update, *Plan Bay Area 2050*, adopted on October 21, 2021 (MTC 2021).

Plan Bay Area 2050 is a long-range plan charting the course for the future of the nine-county San Francisco Bay Area. Plan Bay Area 2050 focuses on four key elements—housing, the economy, transportation and the environment—and identifies goals, policies, and actions to make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges. Plan Bay Area 2050 is the SCS for the nine-county San Francisco Bay Area. *Plan Bay Area 2050* identifies Priority Development Areas (PDAs) in existing urban areas near existing or planned transit service to accommodate the majority of the expected growth across the nine-county San Francisco Bay Area. The agencies estimate approximately 72 percent of housing and 48 percent of job growth will occur in PDAs between 2015 and 2050. The project site is located within a PDA and a Transit Priority Area (TPA) (Figure 2-2).

Plan Bay Area recommends increasing non-auto travel mode share and reducing VMT per capita and per employee by promoting transit-oriented development, transit improvements, and active transportation modes such as walking and bicycling. These strategies seek to not only improve mobility in the region, but also reduce regional and statewide GHG emissions.

Alameda County Transportation Commission Congestion Management Program

Alameda CTC is a joint powers authority that plans, funds, and delivers transportation programs and projects that expand access and improve mobility to foster a vibrant and livable Alameda County. Alameda CTC also serves as the county's congestion management agency. Alameda CTC administers a land use analysis program, which is one of the legislatively required elements of the Alameda CTC Congestion Management Program. The goals of the land use analysis program are to:

- Better integrate local land use and regional transportation investment decisions.
- Better assess the impacts of development in one community on another community.
- Promote information sharing between local governments when the decisions made by one jurisdiction will impact another.

Alameda CTC reviews local land use plans and projects with the potential to cause countywide or regional-scale impacts, including specific plans. The purpose of the Alameda CTC's review is to assess impacts of individual development actions on the regional transportation system and to ensure that significant impacts are appropriately mitigated.

Alameda CTC guidelines state that impacts to all modes should be considered:

- Transit: Effects of vehicle traffic on mixed-flow transit operations, transit capacity, transit access/egress, need for future transit service, consistency with adopted plans and circulation element needs.

- Bicycles: Effects of vehicle traffic on bicyclist conditions, site development and roadway improvements, and consistency with adopted plans.
- Pedestrians: Effects of vehicle traffic on pedestrian conditions, site development and roadway improvements, and consistency with adopted plans.
- Other impacts and opportunities: Noise impacts for projects near state highway facilities and opportunities to environmentally clear access improvements for transit-oriented development projects.

Alameda CTC limits the scope of its review of land use actions to those plans and projects with the potential to cause countywide or regional-scale impacts. Projects are reviewed if they would cause a net increase of 100 p.m. peak hour vehicle trips or more.

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Because the project would add vehicles and pedestrians to City of Berkeley roadways, the City of Berkeley transportation policies set forth below are considered in the evaluation of the standard of significance related to conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities (see Section 3.14.3, "Impact Analysis and Mitigation Measures"). The evaluation of potential conflicts with these policies is provided in the discussion of Impact 3.14-1, below.

City of Berkeley General Plan

The City of Berkeley General Plan Transportation Element contains maps of the citywide transit network, vehicular circulation network, bicycle circulation network, and emergency access and evacuation network. It also contains 53 policies to achieve the following six objectives:

- Maintain and improve public transportation services throughout the City.
- Reduce automobile use and VMT in Berkeley, and the related impacts by providing and advocating for transportation alternatives and subsidies that facilitate voluntary decisions to drive less.
- Improve quality of life in Berkeley neighborhoods by calming and slowing traffic on all residential streets.
- Maintain and improve the existing infrastructure and facilities for the movement of people, goods, and vehicles within and through the City.
- Improve management of public parking to better serve needs of residents, businesses, and visitors.
- Create a model bicycle- and pedestrian-friendly city where bicycling and walking are safe, attractive, easy, and convenient forms of transportation and recreation for people of all ages and abilities.

The following City policies address issues related to UC Berkeley transportation planning.

- **Policy T-4: Transit First Policy.** Give priority to alternative transportation and transit over single-occupant vehicles on Transit Routes identified on the Transit Network map.
- **Policy T-6 Transportation Services Fee.** Ensure that new development does not impact existing transportation services and facilities.
- **Policy T-10: Trip Reduction.** To reduce automobile traffic and congestion and increase transit use and alternative modes in Berkeley, support, and when appropriate require, programs to encourage Berkeley citizens and commuters to reduce automobile trips, such as:

- Participation in a citywide Eco-Pass Program.
- Participation in the Commuter Check Program.
- Carpooling and provision of carpool parking and other necessary facilities.
- Telecommuting programs.
- "Free bicycle" programs and electric bicycle programs.
- "Car-sharing" programs.
- Use of pedal-cab, bicycle delivery services, and other delivery services.
- Programs to encourage neighborhood-level initiatives to reduce traffic by encouraging residents to combine trips, carpool, telecommute, reduce the number of cars owned, shop locally, and use alternative modes.
- Programs to reward Berkeley citizens and neighborhoods that can document reduced car use.
- Limitations on the supply of long-term commuter parking and elimination of subsidies for commuter parking.
- No-fare shopper shuttles connecting all shopping districts throughout the City.

- **Policy T-12: Education and Enforcement.** Support, and when possible require, education and enforcement programs to encourage carpooling and alternatives to single-occupant automobile use, reduce speeding, and increase pedestrian, bicyclist, and automobile safety.
- **Policy T-13: Major Public Institutions.** Work with other agencies and institutions, such as the University of California, the Berkeley Unified School District, Lawrence Berkeley Laboratory, Vista Community College, the Alameda County Court, and neighboring cities to promote Eco-Pass and to pursue other efforts to reduce automobile trips.
- **Policy T-16: Access by Proximity.** Improve access by increasing proximity of residents to services, goods, and employment centers.
- **Policy T-17: Transportation Planning.** Involve residents, businesses, and institutions in all stages of transportation planning.
- **Policy T-18: Transportation Impact Analysis and Vehicle Miles Traveled (Policy adopted by the City of Berkeley City Council on November 19, 2020 to replace the previous Level of Service policy).**[1] When considering transportation impacts under the California Environmental Quality Act, the City shall consider how a plan or project affects all modes of transportation, including transit riders, bicyclists, pedestrians, and motorists, to determine the transportation impacts of a plan or project. Plans and projects shall be designed to deliver significant benefits to travel by pedestrians, bicycle, or transit, and/or reduced impacts on air quality, greenhouse gas emissions, and safety. For the purposes of CEQA, Vehicle Miles Traveled (VMT) shall be the metric used to analyze the transportation impacts of a plan or project.
- **Policy T-23: Truck Routes and Truck Traffic.** To the greatest extent possible, protect residential streets from hazardous or heavy traffic.
- **Policy T-28: Emergency Access.** Provide for emergency access to all parts of the city and safe evacuation routes.
- **Policy T-29: Infrastructure Improvements.** Facilitate mobility and the flow of traffic on major and collector streets (shown on the Vehicular Circulation Network map at the end of the Element), reduce the air quality impacts of congestion, improve pedestrian and bicycle access, and speed public transportation throughout the city by making improvements to the existing physical infrastructure.

[1] This policy directs the City, when considering transportation impacts under CEQA, to evaluate how a plan or project affects all modes of transportation to determine the transportation impacts of a plan or project. The policy includes an action to develop a multimodal level of service to facilitate these evaluations, but the City has not yet developed this tool.

- **Policy T-32: Shared Parking.** Encourage Berkeley businesses and institutions to establish shared parking agreements, which would make the most efficient use of existing and new parking areas.
- **Policy T-37: University of California and Large Employer Parking.** Encourage large employers, such as the University of California and Berkeley Unified School District, to allocate existing employee parking on the basis of a) need for a vehicle on the job, b) number of passengers carried, c) disability, and d) lack of alternative public transportation.
- **Policy T-38: Inter-Jurisdictional Coordination.** Establish partnerships with adjacent jurisdictions and agencies, such as the University of California and the Berkeley Unified School District, to reduce parking demand and encourage alternative modes of transportation.
- **Policy T-39: High-Tech Parking.** To make the most efficient use of available land, encourage consideration of high-tech computerized parking (e.g., lifts and or "robotics") when replacing existing public parking or when providing off-street parking for multi-family residential projects.
- **Policy T-41: Structured Parking.** Encourage consolidating surface parking into structure parking and redevelopment of surface lots with residential or commercial development where allowed by zoning.
- **Policy T-42 Bicycle Planning.** Integrate the consideration of bicycle travel into City planning activities and capital improvement projects, and coordinate with other agencies to improve bicycle facilities and access within and connecting to Berkeley.
- **Policy T-43: Bicycle Network.** Develop a safe, convenient, and continuous network of bikeways that serves the needs of all types of bicyclists, and provide bicycle-parking facilities to promote cycling.
- **Policy T-49: Disabled Access.** Improve pedestrian access for the entire disabled community.
- **Policy T-50: Sidewalks.** Maintain and improve sidewalks in residential and commercial pedestrian areas throughout Berkeley and in the vicinity of public transportation facilities so that they are safe, accessible, clean, attractive, and appropriately lighted.
- **Policy T-51: Pedestrian Priority.** When addressing competing demands for sidewalk space, the needs of the pedestrian shall be the highest priority.
- **Policy T-52: Pedestrian Safety and Accessibility.** Provide safe and convenient pedestrian crossings throughout the city.

City of Berkeley Complete Streets Policy

The Berkeley City Council adopted a Complete Streets Policy (Resolution 65,978-N.S.) in December 2012 to guide future street design and repair activities. "Complete streets" describes a comprehensive, integrated transportation network with infrastructure and design that allows safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, emergency vehicles, seniors, children, youth, and families. The policy includes principles and implementation requirements that address context sensitivity in design, stakeholder participation, incorporation of complete streets considerations into all phases of project development, consistency between relevant plans, design standard guidance, network connectivity considerations, Bicycle and Pedestrian Advisory Committee consultation, and annual programmatic evaluations.

City of Berkeley Vision Zero Resolution and Vision Zero Action Plan

The Berkeley City Council adopted a Vision Zero Policy (Resolution 68,371-N.S.) in March 2018, with a goal of eliminating traffic deaths and severe injuries by 2028. This resolution directed a Vision Zero task force to develop a Vision Zero Action Plan, which was subsequently created and approved by City Council in March 2020. The plan contains the following policies relevant to the project:

- **Policy 1.1.** Collaboration with City departments, regional and community partners, and mobility providers to achieve Vision Zero Goals.

- **Policy 2.1.** Prioritize high-injury streets and the most vulnerable street users.
- **Policy 2.2.** Design for vulnerable users of the transportation network, including people of all ages and abilities.
- **Policy 2.3.** Deliver Vision Zero traffic safety infrastructure improvements both reactively and proactively.
- **Policy 3.1.** Create a culture of traffic safety by promoting awareness through public information programs and campaigns.

City of Berkeley Bicycle Plan

The City of Berkeley Bicycle Plan, approved by Berkeley City Council in May 2017, contains the following policies and actions relevant to the project:

- **Policy PL-1.** Integrate bicycle network and facility needs into all City planning documents and capital improvement projects.
- **Policy PL-2.** When considering transportation impacts under the California Environmental Quality Act, the City shall consider how a plan or project affects bicyclists per Berkeley General Plan Policy T-18.
- **Policy D-1.** Design a Low Stress Bikeway Network suitable for the "Interested but Concerned," to include people of all ages and ability levels riding bicycles in Berkeley.

City of Berkeley 2020 Pedestrian Plan

The City of Berkeley 2020 Pedestrian Plan, adopted in January 2021, establishes investment priorities for pedestrian infrastructure improvements by focusing its recommendations and goals on equity and safety. The goals of the Pedestrian Plan include increasing safety and comfort for people walking, increasing equity and transportation choices for all, and improving public health and environmental sustainability.

3.14.2 Environmental Setting

The transportation study area includes all aspects of the transportation network in the vicinity of the project site. The transportation study area consists of travel corridors and facilities such as transit routes and stations, bicycle routes and amenities, pedestrian sidewalks and crossings, and the overall vehicular roadway network that employees and visitors would use in traveling to and from the project site.

ROADWAYS

The street network at the project site is defined by several primary roadways that serve regional and local vehicle trips.

- **Interstates 80 and 580 (I-80 and I-580)** share the freeway segment located approximately 2 miles west of the project site. North of UC Berkeley, I-80 continues north through the cities of Richmond and Vallejo and continues northeast toward Sacramento. I-580 connects Berkeley with Richmond before crossing the Richmond-San Rafael Bridge and terminating at the US Route 101 (US 101) interchange in Marin County. South of the Campus Park, I-80 connects the East Bay to San Francisco via the San Francisco-Oakland Bay Bridge, and I-580 continues southeast through the cities of Oakland and San Leandro, then east through the cities of Dublin and Livermore before continuing over Altamont Pass into San Joaquin County.
- **Shattuck Avenue** is a north-south street that runs from just south of State Route 24 (SR 24) in Oakland to Arlington Avenue in Berkeley. Shattuck Avenue is a two-lane roadway from its southern terminus to Adeline Street, a four-lane roadway with a raised median from Adeline Street to Vine Street, and a two-lane roadway from Vine Street to Arlington Avenue. Alameda-Contra Costa Transit District (AC Transit) Lines 6, 7, 18, 51B, 79, 800, 851, and F runs along Shattuck Avenue within one-half mile of the project site. The speed limit on Shattuck Avenue is 25 mph. The City of Berkeley Vision Zero Plan and the 2020 Pedestrian Plan identify the entire extent of Shattuck Avenue as a High-Injury Street.

- **University Avenue** is an east-west roadway that runs from I-80/I-580 to Oxford Street in Berkeley. University Avenue is a four-lane divided roadway between I-80/I-580 and Sixth Street and is a four-lane roadway with a raised median between Sixth and Oxford Streets, where it terminates at the UC Berkeley Campus Park, adjacent to the project site. University Avenue provides direct access to the project site via a right-in/right-out driveway on the block between Shattuck Avenue and Oxford Street. AC Transit Lines 51B, 52, 70, 88, and 800 run along University Avenue near the project site. The speed limit is 25 mile per hour (mph), except from the Eastshore Highway to Fifth street, where the speed limit is 35 mph. The City of Berkeley Vision Zero Plan identifies University Avenue from Eastshore Highway to Shattuck Avenue as a High-Injury Street. The 2020 Pedestrian Plan identifies University Avenue from Eastshore Highway to Oxford Street (including the project frontage) as a High-Injury Street.
- **Oxford Street** is a north-south roadway that runs along the west side of Campus Park and continues north through Berkeley. South of the Campus Park the roadway becomes Fulton Street which extends south to Ashby Avenue. There are traffic diverters along Fulton Street south of Dwight Way that restrict through-traffic movements. The Oxford Street corridor has four lanes along the project frontage and then transitions to a two-lane roadway to the north and south. AC Transit Lines 52, 65, and 67 run along Oxford Street within one block of the project site. The speed limit is 25 mph. The City of Berkeley Vision Zero Plan identifies Oxford Street from Hearst Avenue to Bancroft Way as a High-Injury Street. The 2020 Pedestrian Plan identifies Oxford Street from Cedar Street to Durant Avenue as a High-Injury Street.
- **Addison Street** is an east-west local street with one vehicle travel lane in each direction. On-street parking is provided along both sides of the street. AC Transit Lines 6 and 851 run along Addison Street near the project site. The speed limit is 25 mph.

TRANSIT

Transit service providers in the vicinity include the Bay Area Rapid Transit (BART) which provides regional rail service, AC Transit that provides local and Transbay bus service with connections to the Transbay Terminal in San Francisco, and various shuttle services. The transit service information presented in this section generally summarizes conditions that existed at the time of the NOP for this EIR and after service was modified in response to the COVID-19 pandemic.

BART

BART provides regional commuter rail service between San Francisco/South Bay and the East Bay (Antioch, Richmond, Dublin/Pleasanton, and Berryessa /North San Jose), as well as between San Francisco and San Mateo County (SFO Airport and Millbrae). Within Berkeley, BART operates underground along Martin Luther King Jr. Way, Adeline Street, and Shattuck Avenue before turning west underneath Hearst Avenue. Access to the Downtown Berkeley BART station is available two blocks west of the project site, and the station is served by the Richmond-Berryessa/North San José train from 5:00 a.m. to midnight on weekdays, from 6:00 a.m. to midnight on Saturdays, and from 8:00 a.m. to 9:00 p.m. on Sundays[2]. The Downtown Berkeley BART station is served by about 16 trains per hour during the weekday peak commute periods.

AC Transit

AC Transit is the primary bus service provider in 13 cities and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo, and Santa Clara Counties.

The project site would be served by AC Transit's Lines 6, 7, 18, 51B, 52, 65, 67, 70, 79, 88, 800, 850, and F.

UC Berkeley Bear Transit

Bear Transit is UC Berkeley's shuttle system, servicing the campus and vicinity. Bear Transit provides transportation between Downtown Berkeley BART, parking lots, and various UC Berkeley facilities. Service includes four daytime routes and two nighttime safety routes. The nearest stops to the project site are located at Oxford Street/University Avenue and Kala Bangai Way/Addison Street and provide service on the Central Campus Loop, Perimeter Loop, and

[2] BART station schedules reflect service as of January 21, 2024.

Reverse Perimeter Loop. Additionally, the Night Safety Shuttle service is an extension of the Bear Transit daytime service and provides safe nighttime transit to and from the UC Berkeley campus.

PEDESTRIAN FACILITIES

Walking to, from, and within the UC Berkeley Campus Park and the City Environs land use zone is a common travel mode option for many Berkeley residents and employees, and UC Berkeley faculty, staff, and students. Based on the 2019 UC Berkeley Transportation Survey, approximately 50 percent of UC Berkeley affiliates commute to and from the UC Berkeley campus by walking.

Near the project site, high-visibility continental crosswalks are located at all intersections on the project block, including the uncontrolled crossing at Walnut Street.[3] Most intersections and crossings have Americans with Disabilities Act- (ADA-) compliant curb ramps with tactile domes. Title II of ADA requires state agencies to develop a transition plan to mitigate all barriers to accessing the agency's services. In compliance, UC Berkeley is undertaking development of an ADA transition plan, with four major phases. The first is a detailed survey to identify existing physical barriers in both the interior and exterior campus environments. Second, solutions are proposed to mitigate all identified barriers. Third, a schedule or plan for barrier mitigation is developed. Fourth, the final plan will be built into a database that can track implementation. Additionally, a self-evaluation will be prepared to address programmatic barriers to accessibility.

BICYCLE FACILITIES

Biking to, from, and within the UC Berkeley Campus Park and the City Environs land use zone is a common travel mode option for many Berkeley residents and UC Berkeley faculty, staff, and students. Based on the 2019 UC Berkeley Transportation Survey, approximately 13 percent of UC Berkeley affiliates commute to and from the UC Berkeley campus by bicycle.

Based on the 2017 City of Berkeley Bicycle Plan, bicycle facilities have the following classifications:

- Class I Multiuse Paths provide completely separated, exclusive right-of-way for bicycling, walking, and other nonmotorized uses.
- Class II Bicycle Lanes are striped, preferential lanes for one-way bicycle travel on roadways and may include buffer striping to add separation between vehicle lanes or parking lanes.
- Class III Bicycle Routes have sharrow striping and are often signed bicycle routes where people riding bicycles share a travel lane with people driving motor vehicles.
- Class IV Cycle Track, or separated / protected bikeway, is an on-street bicycle lane that is physically separated from motor vehicle traffic by a vertical element (raised island, bollards, or on-street parking).

Existing bicycle facilities in the vicinity of the project site include:

- Class II Bicycle Lanes along Oxford Street from Hearst Avenue to Fulton Street;
- Class II and Class IV Bicycle Lanes along Hearst Avenue; and
- Class II Bicycle Lanes along Center Street.

Bicycle parking and bike share facilities exist within and adjacent to the project site. BayWheels offers a bike share service that can be accessed via multiple stations in the area, including along the project frontage at Oxford Street/University Avenue.

[3] Continental crosswalks are high-visibility roadway markings using thick vertical striping.

EMERGENCY ACCESS CONDITIONS

Berkeley Fire Station No. 2 is approximately 0.2 mile west of the project site on Berkeley Way at Shattuck Avenue. The closest Berkeley fire station is Station #2, located just northwest of the project site at 2029 Berkeley Way. Alta Bates Summit Medical Center (Alta Bates Campus) is approximately 1.2 miles southwest of the project site, located at 2450 Ashby Avenue. Alta Bates Summit Medical Center (Herrick Campus) is approximately 3,000 feet south of the project site, located on Dwight Way between Milvia Street and Shattuck Avenue.

Emergency vehicle access to the project site is currently provided by existing driveways on University Avenue and Addison Street. All streets providing direct access to the project site are wide enough to provide adequate access for emergency vehicles.

TRANSPORTATION DEMAND MANAGEMENT AND MODE SHARE

There are many factors that determine how people travel to/from work, including home location, work shifts, access to transit, travel incentives and disincentives (e.g., how convenient or costly it is to park), or other obligations before or after work (e.g., childcare drop-off or pick-up).

A transportation demand management (TDM) program is a set of policies and programs that include incentives, information, and education to encourage employees to commute to work by modes other than driving alone. The UC Berkeley TDM Strategic Plan is designed to address faculty, staff, and student travel to the UC Berkeley campus and includes strategies that emphasize alternative commuting options such as public transit, biking, walking, carpooling, and car sharing. The key elements of the UC Berkeley TDM Strategic Plan are summarized in Table 3.14-1 below.

Table 3.14-1 Existing UC Berkeley Transportation Demand Management Program Elements

TDM Strategy	Description
Transit Pass Subsidies	AC Transit Class Pass or EasyPass is available for all students, faculty, and staff, providing discounted rates for transit trips.
Shuttle	Bear Transit provides shuttle service between the various UC Berkeley campus destinations, the surrounding communities, and the regional transit network.
Priced Permit Parking	Parking permits are priced to influence demand.
Pre-Tax Commuter Benefits Program	The Pre-Tax commuter benefits program allows employees to reduce their public transit and vanpool costs by about one-third. The program works by allowing participants to deduct up to $270 per month (as of 2020) from their paycheck without paying payroll taxes on this income.
Bike Share	BayWheels offers bicycle share via five stations around the Campus Park and subsidized memberships for Educational Opportunity Program students.
Carpool Parking	Discounted parking for UC Berkeley faculty, staff, and students with a valid carpool permit.
Online Commute Planning Tool	BerkeleyMoves! Commuter Club website and app used to pair commuters who are taking trips with similar characteristics (i.e., similar origins and destinations). The service also informs commuters of how their mode choice impacts trip costs as well as the environment.
Bicycle Parking	Improved bicycle parking and FixIt Stations make commuting by bicycle easier for faculty, staff, and students.
Carshare	Zipcars and GIG Carshare are available for students and employees to use, and 14 dedicated Zipcar spaces are provided on the UC Berkeley campus. Zipcar offers discounted fees for faculty, staff, and students.
Bear Transit Night Safety Services	The Night Safety Shuttle service is an extension of the Bear Transit daytime service and provides safe nighttime transit to and from the Campus Park. Bear Transit Night Safety Shuttles are free to all and operate year-round.
Designated TDM Administrator and increased marketing	A UC Berkeley TDM Administrator manages the TDM program, which includes the production and distribution of marketing materials to educate faculty, staff, and students about the benefits of the program.

Source: Compiled by Kittelson & Associates in 2024.

UC BERKELEY MODE SHARE

Most faculty, staff, and students commute to the UC Berkeley campus by modes other than driving, with mode shares varying between different population groups. Table 3.14-2 summarizes the commute mode shares of different population groups based on the 2019 UC Berkeley Transportation Survey. This table reflects the shares for all UC Berkeley students, faculty, and staff.

As shown in Table 3.14-2, 46 percent of faculty and 44 percent of staff drive alone, with an additional 7 percent and 9 percent, respectively, either carpooling, being dropped off, or using ride hailing services (e.g., Lyft or Uber). Faculty are more likely to ride bicycles (18 percent) or walk to campus (17 percent), and staff are more likely to take transit (25 percent), reflecting that faculty are more likely to live closer to campus. Among students, almost three-quarters of undergraduates walk to campus (74 percent), followed by transit use (13 percent) and riding a bicycle (7 percent), while graduate students are almost evenly split between walking (31 percent), transit (30 percent), and riding a bicycle (28 percent). Undergraduates are less likely to drive alone to campus (4 percent) compared to graduate students (8 percent) and are less likely to carpool, be dropped off, or use a ride hailing service (2 percent and 3 percent, respectively). Altogether, approximately 50 percent of the UC Berkeley population commutes to and from the UC Berkeley campus by walking, with 18 percent using transit, 15 driving alone, and 13 percent riding a bicycle.

Table 3.14-2 Existing UC Berkeley Population Commute Mode Shares

Mode	Faculty	Staff	All Employees	Undergraduate Students	Graduate Students	All Students	Aggregated Total
Drive Alone	46%	44%	44%	4%	8%	5%	15%
Carpool	5%	6%	6%	0%	1%	1%	2%
Dropped Off	1%	2%	2%	1%	1%	1%	1%
Ride-Hail	1%	1%	1%	1%	1%	1%	1%
Bicycle	18%	12%	14%	7%	28%	12%	13%
Walk	17%	10%	12%	74%	31%	62%	50%
Transit	12%	25%	21%	13%	30%	18%	18%

Source: UC Berkeley 2021.

3.14.3 Impact Analysis and Mitigation Measures

This section describes the analysis techniques, assumptions, and results used to identify potential significant impacts of the project on the transportation system. Transportation impacts are described and assessed, and mitigation measures are recommended for impacts identified as significant or potentially significant.

THRESHOLDS OF SIGNIFICANCE

The significance criteria used to evaluate the project impacts to transportation and traffic under CEQA are based on Appendix G of the State CEQA Guidelines. The project would result in a significant impact related to transportation and traffic if it would:

- conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- conflict or be inconsistent with CEQA Guidelines 15064.3, subdivision (b);
- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- result in inadequate emergency access.

METHODOLOGY

Conflicts with Applicable Plans, Ordinances, or Policies

The methodology qualitatively addresses the potential for the project to conflict with an applicable plan, ordinance, or policy addressing the transportation and circulation network. The analysis identifies applicable plans, ordinances, and policies and describes how the project would be consistent.

Vehicle Miles Traveled Analysis

The following quantitative thresholds of significance are recommended by OPR's guidance for assessing transportation impacts to determine whether the project would generate substantial additional VMT:

- For residential projects, if it exceeds the regional household VMT per capita minus 15 percent.
- For office projects, if it exceeds the regional VMT per employee minus 15 percent.
- For retail projects, if it exceeds the regional VMT per retail employee minus 15 percent.
- For mixed-use projects, evaluate each land use independently, per the thresholds of significance described above.

Screening criteria are applied to identify types and locations of land use projects that would not exceed these quantitative thresholds of significance. Consistent with OPR's guidance, land use projects that meet at least one of the following screening criteria are presumed to cause a less-than-significant VMT impact and would not require VMT analysis under CEQA.

Screening Threshold for Small Projects. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a SCS or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.

Map-Based Screening for Residential and Office Projects. Residential and office projects that are located in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below the threshold VMT. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis.

Presumption of Less Than Significant Impact Near Transit Stations. State CEQA Guideline Section 15064.3, Subdivision (b)(1), states that lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within one-half mile of an existing major transit stop[4] or an existing stop along a high-quality transit corridor[5] will have a less-than-significant impact on VMT. These specific regions are also called TPAs. This presumption would not apply, however, if project specific or location-specific information indicates that the project will still generate significant levels of VMT. For example, the presumption might not be appropriate if the project:

- Has a Floor Area Ratio (FAR) of less than 0.75.
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking).
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization).
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

---

[4] Public Resources Code Section 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").

[5] Public Resources Code Section 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

- Have project-specific or location-specific information that indicates that the project will generate significant levels of VMT.

Potentially Hazardous Conditions

For purposes of CEQA transportation analysis, hazards refer to engineering aspects of a project (e.g., vehicle speed, vehicle turning movements, complex designs, substantial distance between street crossings, insufficient sight lines) that may cause a greater risk of collisions that result in serious or fatal physical injury than a typical project. A traffic hazard is defined as a structure, object, or vegetation that obstructs, hinders, or impairs reasonable and safe view by drivers of other vehicles, pedestrians, or bicyclists, and restricts the ability of the driver to stop the vehicle without danger of collision. This analysis focuses on hazards that could reasonably stem from the project itself, beyond collisions that may result from non-engineering aspects or the transportation system as a whole. Therefore, the methodology qualitatively addresses the potential for the project to exacerbate an existing traffic hazard or create a new potentially hazardous condition to people walking, bicycling, or driving, or public transit operations. The methodology accounts for the amount, movement type, sightlines, and speed of project vehicle trips and project changes to the public right-of-way in relation to the presence of people walking, bicycling, or driving.

Although CEQA guidance does not list any specific criterion for the evaluation of wind effects of a project, high wind speeds can pose a hazard at the pedestrian level in the public right-of-way and are therefore considered in this analysis to address potential hazards to pedestrian facilities pursuant to CEQA. A Pedestrian Wind Study (Appendix J) is prepared by RWDI to assess the potential wind conditions resulting from project implementation.

Emergency Access

The methodology qualitatively addresses the potential for the project to cause inadequate emergency access. The methodology accounts for the ability of facilities on or near the project site to accommodate emergency service operators and any changes to the public right-of-way that would result in changes to turning movements or alter the ability of emergency service operators to access streets and buildings in the transportation study area.

ISSUES NOT DISCUSSED FURTHER

Vehicle Parking

SB 743 amended CEQA by adding California Public Resources Code (PRC) Section 21099 regarding the analysis of parking impacts for certain urban infill projects in transit priority areas.[6] PRC Section 21099(d), effective January 1, 2014, provides that "parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." Accordingly, parking is no longer considered in determining if a project has the potential to result in significant environmental effects for projects that meet all three criteria established in the statute. This issue is not discussed further.

IMPACT ANALYSIS

Impact 3.14-1: The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system.

Construction

Project construction is expected to occur during weekdays, Monday to Friday, from 7:00 a.m. to 5:00 p.m., with limited evening or weekend hours if needed, consistent with the City of Berkeley noise ordinance. Demolition would commence later this year and last up to 10 months and building construction would begin in 2025 and is expected to last up to

6 A "transit priority area" is defined as an area within 0.5 mile of an existing or planned major transit stop. A "major transit stop" is defined in California Public Resources Code Section 21064.3 as a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

three years. Construction traffic is expected to minimally impact the existing roadways and would not require full or partial roadway closures. Regional construction traffic is expected to travel to the project site by using a combination of interstate highways, including I-80, I-580, I-880 and I-980, while local construction traffic would use designated City of Berkeley truck routes, along University Avenue and Shattuck Avenue. During construction, vehicles, equipment, and materials would be staged and stored on the project site. A combination of on- and off-site parking facilities for construction workers would be identified. Off-site construction-related parking would be located as close to the project site as possible and would not be expected to create roadway closures along roadways near the project site.

Construction traffic would be temporary and would not create any permanent changes to the circulation system within the vicinity of the project site. Construction would adhere to and comply with UC Berkeley guidelines including the UC Berkeley Campus Design Standards, as described in Section 3.14.1, "Regulatory Setting." Additionally, as part of the project, UC Berkeley would implement the transportation (TRAN) CBPs listed here:

- CBP TRAN-5: UC Berkeley will require contractors working on major new construction or major renovation projects to develop and implement a Construction Traffic Management Plan that reduces construction-period impacts on circulation and parking within the vicinity of the project site. The Construction Traffic Management Plan will address job-site access, vehicle circulation, bicycle and pedestrian safety, and be coordinated with the City of Berkeley Public Works Department when projects require temporary modifications to city streets.
- CBP TRAN-6: For each construction project, UC Berkeley will require the prime contractor to prepare a Construction Traffic Management Plan which will include the following elements:
  - Proposed truck routes to be used, consistent with the City truck route map.
  - Construction hours, including limits on the number of truck trips during the morning (AM) and evening (PM) peak traffic periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.), if conditions demonstrate the need.
  - Proposed employee parking plan (number of spaces and planned locations).
  - Proposed construction equipment and materials staging areas, demonstrating minimal conflicts with circulation patterns.
  - Expected traffic detours needed, planned duration of each, and traffic control plans for each.
  - Identifying bicycle and pedestrian detours and safety plan, including solutions to address impacts to accessible routes.
- CBP TRAN-7: UC Berkeley will manage project schedules to minimize the overlap of excavation or other heavy truck activity periods that have the potential to combine impacts on traffic loads and street system capacity, to the extent feasible.
- CBP TRAN-8: UC Berkeley will reimburse the City of Berkeley for its fair share of costs associated with damage to City streets from UC Berkeley construction activities, provided that the City adopts a policy for such reimbursements applicable to all development projects within Berkeley.

Implementation of these CBPs would minimize construction transportation impacts and conform with UC Berkeley Campus Design Standards and City of Berkeley General Plan Policy T-23 (Truck routes and Truck Traffic) during construction. Therefore, the construction of the project would not result in a conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Operation

Table 3.14-3 summarizes the project consistency with applicable transportation-related plans, ordinances, and policies during project operation.

Table 3.14-3 Project Compliance with Applicable Transportation-Related Plans, Ordinance, and Policies

Plan/Ordinance/Policy	Project Consistency
Plan Bay Area 2050	*Consistent.* The project would be consistent with the Plan Bay Area 2050 goals and performance targets for transportation system effectiveness. Specifically, the project would be located in a PDA and a TPA and would implement CBP TRAN-1 to provide pedestrian access and bicycle parking on three sides of the project perimeter. ▶ **CBP TRAN-1:** UC Berkeley will implement bicycle, pedestrian, and transit access and circulation improvements as part of new building projects, major renovations, and landscape projects. Improvements will address the goal of increasing non-vehicular commuting and safety; improving access from adjacent campus or city streets and public transit; reducing multi-modal conflict; providing bicycle parking; and providing commuter amenities.
Alameda CTC Congestion Management Program	*Consistent.* The project would provide adequate pedestrian, bicycle and emergency access within the project site including upgrading the existing sidewalk along the project frontage on Addison Street, Oxford Street, and University Avenue. Bicycle racks would be located along the sidewalks on three sides of the buildings. Secure bicycle racks would be located within the parking garage in the North Building. The project would generate fewer than 100 p.m. peak hour vehicle trips and would not be subject to Alameda CTC Congestion Management Program segment analysis (see "Travel Demand" discussion below). During project operation, potential vehicle queueing at garage entrance and potential conflicts between vehicles, bicycles and pedestrians could occur. The project would be designed to address vehicles, bicycles, and pedestrian circulation, such as providing adequate throat length to allow stacking or queuing to occur on-site and providing adequate on-site maneuvering space for trucks and large vehicles. The project would be consistent with the Alameda CTC Congestion Management Plan and would not significantly impact the roadway, transit, bicyclist, or pedestrian facilities in the transportation study area.
City of Berkeley General Plan	
Policy T-4: Transit First Policy. Give priority to alternative transportation and transit over single-occupant vehicles on Transit Routes identified on the Transit Network map.	*Consistent.* As discussed in Section 3.14.2, "Environmental Setting," the project would be located near existing transit infrastructure to encourage alternative transportation modes, including Downtown Berkeley BART station, AC Transit's Lines (e.g., Lines 6, 7, and F), and Bear Transit. The project would also provide bicycle parking along the sidewalks on three sides of the buildings and secure parking within the North Building parking garage.
Policy T-10: Trip Reduction. To reduce automobile traffic and congestion and increase transit use and alternative modes in Berkeley, support, and when appropriate require, programs to encourage Berkeley citizens and commuters to reduce automobile trips.	*Consistent.* The project would implement CBP TRAN-1 (discussed above) that would increase transportation choices for residents, visitors, and employees, and encourage travel by sustainable modes.
Policy T-12: Education and Enforcement. Support, and when possible require, education and enforcement programs to encourage carpooling and alternatives to single-occupant automobile use, reduce speeding, and increase pedestrian, bicyclist, and automobile safety.	*Consistent.* The project would implement CBP TRAN-1 (discussed above) that would increase transportation choices for residents, visitors, and employees, and encourage travel by sustainable modes.
Policy T-14: Private Employers. Encourage private employers to reduce the demand for automobile travel through transportation demand management programs.	*Consistent.* The project would implement CBP TRAN-1 (discussed above) that would increase transportation choices for residents, visitors, and employees, and encourage travel by sustainable modes.

Plan/Ordinance/Policy	Project Consistency
Policy T-17: Transportation Planning. Involve local residents, businesses, and institutions in all stages of transportation planning.	*Consistent.* UC Berkeley has involved the community in a number of ways to gather feedback on the project site, including a NOP scoping meeting to introduce the project and to solicit public comments and project webpage to include project information and opportunities to provide feedback. A public hearing will be held when the public draft EIR is published for review to solicit public comments. Moreover, the project site was identified as a development site during the planning process for the UC Berkeley 2021 Long Range Development Plan. that previously went through a public review process, pursuant to CEQA.
Policy T-18: Transportation Impact Analysis and Vehicle Miles Traveled. For the purposes of CEQA, Vehicle Miles Traveled (VMT) shall be the metric used to analyze the transportation impacts of a plan or project.	*Consistent.* VMT analysis is used to analyze the transportation impacts of the project. The VMT analysis is provided under Impact 3.14-2.
Policy T-29: Infrastructure Improvements. Facilitate mobility and the flow of traffic on major and collector streets, reduce the air quality impacts of congestion, improve pedestrian and bicycle access, and speed public transportation throughout the city by making improvements to the existing physical infrastructure.	*Consistent.* The project does not include modifications to the existing transportation network. However, the project would implement CBP TRAN-4 to coordinate transit access to new buildings. ▸ **CBP TRAN-4:** UC Berkeley will continue to work with the City of Berkeley, AC Transit, and BART to coordinate transit access to new academic buildings, parking facilities, and campus housing projects, in order to accommodate changing locations or added demand.
Policy T-32: Shared Parking. Encourage Berkeley businesses and institutions to establish shared parking agreements, which would make the most efficient use of existing and new parking areas.	*Consistent.* The parking garage in the North Building will be open for public use.
Policy T-41: Structured Parking. Encourage consolidation of surface parking lots into structured parking facilities and redevelopment of surface lots with residential or commercial development where allowed by zoning.	*Consistent.* The project would demolish the existing UC Berkeley surface parking lots on-site and construct a parking garage in the North Building.
Policy T-43: Bicycle Network. Develop a safe, convenient, and continuous network of bikeways that serves the needs of all types of bicyclists and provide bicycle-parking facilities to promote cycling.	*Consistent.* The project does not include modifications to the existing transportation network. The project would provide bicycle parking along the sidewalks on three sides of the buildings and within the North Building parking garage. During project operation, vehicles and trucks coming in and out of the parking garage and loading docks would have the potential to interrupt bicycle circulation in the vicinity of the project site. The project would be designed to address bicycle circulation, such as providing adequate on-site maneuvering space for trucks and large vehicles.
Policy T-49: Disabled Access. Improve pedestrian access for the entire disabled community.	*Consistent.* The project access would be designed to accommodate and improve access for people with disabilities.
Policy T-50: Sidewalks. Maintain and improve sidewalks in residential and commercial pedestrian areas throughout Berkeley and in the vicinity of public transportation facilities so	*Consistent.* The project would provide improved pedestrian access, install new sidewalks, provide internal connections as well as accessible walkways, and provide nighttime illumination.

Plan/Ordinance/Policy	Project Consistency
that they are safe, accessible, clean, attractive, and appropriately lighted.	
Policy T-51: Pedestrian Priority. When addressing competing demands for sidewalk space, the needs of the pedestrian shall be the highest priority.	*Consistent.* The project would provide improved pedestrian access, install new sidewalks, and provide internal connections as well as accessible walkways, and provide nighttime illumination.
Policy T-52: Pedestrian Safety and Accessibility. Provide safe and convenient pedestrian crossings throughout the city.	*Consistent.* During project operation, vehicles and trucks coming in and out of the parking garage and loading docks would have the potential to interrupt pedestrian circulation in the vicinity of the project site. The project would be designed to address pedestrian circulation, such as providing adequate on-site maneuvering space for trucks and large vehicles. In addition, the project would provide improved pedestrian access, install new sidewalks, provide internal connections as well as accessible walkways, and provide nighttime illumination.
City of Berkeley Vision Zero Resolution and Vision Zero Action Plan	
Policy 2.1 Prioritize high-injury streets and the most vulnerable street users.	*Consistent.* The project does not include modifications to the existing transportation network.
Policy 2.2 Design for vulnerable users of the transportation network, including people of all ages and abilities.	*Consistent.* The project does not include modifications to the existing transportation network.
Policy 2.3 Deliver Vision Zero traffic safety infrastructure improvements both reactively and proactively.	*Consistent.* The project does not include modifications to the existing transportation network.
City of Berkeley Complete Street Policy	*Consistent.* The City of Berkeley Complete Street Policy describes a comprehensive, integrated transportation network to allow safe and convenient travel across and along streets for all users. The project does not include modifications to the existing transportation network.
City of Berkeley Bicycle Plan	
Policy PL-1. Integrate bicycle network and facility needs into all City planning documents and capital improvement projects.	*Consistent.* The project would provide bicycle parking along the sidewalks on three sides of the buildings and secure bicycle parking within the North Building parking garage.
Policy PL-2. When considering transportation impacts under the California Environmental Quality Act, the City shall consider how a plan or project affects bicyclists per Berkeley General Plan Policy T-18.	*Consistent.* Impacts of the project on bicyclists are evaluated and discussed under Impact 3.14-1 and Impact 3.14-3. The VMT analysis is provided under Impact 3.14-2.
City of Berkeley 2020 Pedestrian Plan	*Consistent.* There are several identified Pedestrian High Injury Streets within the transportation study area. The project does not include modifications to the existing transportation network. The project would provide pedestrian access and circulation to enhance safety and improve connectivity to the project site.

Travel Demand

Travel demand refers to the process of estimating the number of vehicle trips a project would add to the surrounding transportation network. The trip generation estimates were developed using the vehicle trip rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual (11^{th} Edition) for the proposed land uses. Adjustments to the ITE trip generation rates were applied using methods consistent with standard engineering practice. Adjustment factors include vehicle-trip to person-trip conversion, pass-by and diverted trip capture to account for surrounding land use mix, and mode share adjustments to account for available transportation options. These adjustment factors and their application are described in this section. Travel demand estimates are provided in Appendix I.

Given the proximity of the project site to a variety of land uses within walking distance, multiple high frequency transit routes, dedicated bicycle facilities, and the availability of rideshare service, a modal split adjustment is applied to account for carpool, transit, walk, bike, and taxi/transportation network company (e.g., Uber, Lyft) trips. Mode share was estimated based on data available from UC Berkeley transportation surveys. Table 3.14-4 presents estimated project-generated external person trips by mode.

Table 3.14-4 Project Travel Demand Estimate

Mode	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
	In	Out	Total	In	Out	Total
Drive alone[1]	45	13	58	10	41	51
Carpool	6	2	8	1	7	8
Drop-off and ride-hail	3	1	4	1	2	3
Transit	55	14	69	12	49	61
Walk	149	42	191	34	138	171
Bike	40	10	50	9	35	44
Project Person-Trips[1]	**298**	**82**	**380**	**67**	**272**	**338**
Project Vehicle-Trips	*54*	*16*	*70*	*12*	*50*	*62*

Notes: "Other" mode includes carpooling. Total external trips may not add up to totals due to rounding. The project travel demand includes trips generated by the project's land use program.

[1] Project person-trip estimates are calculated by factoring ITE vehicle-trips by a multiple of 1.18 to convert vehicle-trips to person-trips and then converts back to trips by mode using mode share adjustment rates from the UC Berkeley transportation survey.

Source: Appendix I.

As shown in Table 3.14-4, the project would generate approximately 380 person trips during the AM. peak hour, including 70 vehicle trips (including drive alone, carpool, and ride-hail), 69 transit trips, 191 walk trips, and 50 bike trips. During the weekday PM peak hour, the development would generate approximately 338 person trips, including 62 vehicle trips, 61 transit trips, 171 walk trips, 44 bike trips. Therefore, the project would not result in 100 or more p.m. peak hour vehicle trips and would not require Alameda CTC Congestion Management Program review.

Summary

As discussed above, project construction would include implementation of CBPs TRAN-5 through TRAN-8, which would minimize construction transportation impacts and conform with UC Berkeley Campus Design Standards. During operation, the project would be consistent with applicable plans, ordinances, and policies as summarized in Table 3.14-3. In addition, the project would implement CBP TRAN-4 to encourage public transit use. The project supports the UC Sustainable Practice Policy and the UC Berkeley Sustainability Plan as it would implement CBP TRAN-1 (discussed above) that encourages a shift away from drive-alone vehicle trips, which are a primary contributor to GHG emissions and localized transportation impacts. Therefore, the impacts related to conflict with applicable plans, ordinances, and policies would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.14-2: The project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b).

Construction

State CEQA Guidelines Section 15064.3(b) focuses on VMT for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. This EIR provides a qualitative analysis of the project construction under this Subdivision (b)(3), which recognizes that lead agencies may not be able to quantitatively estimate VMT for every project type. In these situations, lead agencies are directed to evaluate factors such as the availability of transit, proximity to other destinations, and other factors that may affect the amount of driving required by the project. Additionally, Subdivision (b)(3) indicates that a qualitative analysis of construction traffic is often appropriate. A qualitative analysis of VMT is provided in this analysis as the project consists of elements that would generate temporary construction-related traffic.

The State CEQA Guidelines do not establish significance thresholds outright; however, the OPR Technical Advisory (OPR 2018) recommends a VMT threshold of significance for land use development (including residential, office, and other land uses), as well as for transportation projects. There is no VMT significance threshold for construction projects.

The project would generate temporary construction-related traffic during the construction period. All construction workers and vendor trips would generate VMT; however, once construction is completed, the construction-related traffic would cease and VMT would return to similar pre-construction conditions. The VMT generated by the construction of the project would be short-term and temporary and would not require a detailed VMT analysis. Therefore, the construction of the project would not conflict with or be inconsistent with State CEQA Guidelines Section 15064.3, Subdivision (b).

Operation

The project would meet VMT screening criteria for projects located within a TPA. The project is located within one-half mile walkshed around a major transit stop (Downtown Berkeley BART Station) and would not have any of the following characteristics.

- **Floor Area Ratio (FAR) of less than 0.75 for office uses**. The project would have a floor area ratio of more than 0.75.
- **Include more parking supply than the project's estimated demand**. The project would provide up to 350 vehicle parking spaces. Using vehicle parking demand rates provided in the ITE's Parking Manual for the proposed land use program, average estimated vehicle parking demand would be 629 spaces. Similar to vehicle trip generation, adjustments to the ITE parking generation estimates were applied to reflect the lower auto mode share expected of people traveling to and from the project site. When accounting for the relative increase in transit, walk, and bike trips based on data available from UC Berkeley transportation surveys, the estimated average daily vehicle parking demand would be 394 spaces, which would exceed the proposed supply by 44 spaces. As such, the project would not provide more parking supply than the project's estimated demand.
- **Inconsistent with the City's General Plan, an applicable Specific Plan, or an applicable Sustainable Communities Strategy**. As discussed under Impact 3.14-1, the project would be consistent with applicable plans, ordinances, and programs, including the City's General Plan and Plan Bay Area 2050.
- **Replace affordable residential units with market rate residential units**. The project site does not contain housing and is not zoned for housing development. The project would not replace affordable residential units and is not subject to this criterion.
- **Have project-specific or location-specific information that indicates that the project will generate significant levels of VMT**. The project would be located within one-half mile of a BART station and within two blocks of multiple high frequency transit stops with service to multiple local and regional destinations. Additionally, the project would implement CBPs (discussed under Impact 3.14-1) related to transportation demand management with a goal of reducing project generated vehicle trips.

For these reasons, the project is exempt from further VMT analysis.

Summary

Construction of the project would involve a temporary increase in construction-related traffic resulting in an increase in VMT. However, the VMT generated by construction activities would cease once construction is completed. The short-term and temporary increase of VMT during construction would not require a detailed VMT analysis. The project is located within a TPA within one-half mile walkshed around the Downtown Berkeley BART Station. Therefore, operation of the project is exempt from further VMT analysis. The project would not conflict with or be inconsistent with CEQA Guidelines 15064.3 Subdivision (b). This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.14-3: The project would not substantially increase hazards due to a geometric design feature or incompatible uses.

Construction

As described previously, construction of the project would result in a temporary increase in local traffic as a result of construction-related workforce traffic, material deliveries, and construction activities. Construction of the project may require full or partial temporary roadway closures. Any hazards related to construction would be minimized as described below and construction staging would be confined to the project site.

All construction of the project would comply with all relevant UC Berkeley and City of Berkeley policies related to construction, and CBPs related to construction would be implemented as part of the project, as described in Impact 3.14-1. As required by CBP TRAN-6, a Construction Traffic Management Plan would be required to manage hazards arising from construction equipment and construction vehicles. The Construction Traffic Management Plan would address job-site access, vehicle circulation, bicycle, and pedestrian safety, and be coordinated with the City of Berkeley Public Works Department if City streets would be affected.

Construction vehicles parking would be located as close to the project site as possible, and roadway or sidewalk closures would be minimized to the extent possible. The locations of all existing roadways would remain unchanged and there would not be any new sharp curves or hazardous conditions as a result of construction. The project would not entail the introduction of incompatible uses along any of the roadways adjacent to the project site. Therefore, construction of the project would not introduce hazardous design features or incompatible uses with the potential to create a transportation hazard.

Operation

Roadway- and Sidewalk-Design-Related Hazards

The South Building would provide a new laboratory building that would include five above-ground floors, a non-occupied mechanical space at the roof, and a below-grade basement with a primary entrance located on Oxford Street or Addison Street. The South Building would provide space for permanent occupancy of up to 340 people. Building loading and delivery access to the building would be via an existing driveway off of Addison Street to loading docks located at the western end of the building.

The North Building would provide a new laboratory building and parking garage, with up to 350 vehicle parking spaces, that includes 11 above-ground floors and a non-occupied mechanical space at the roof, and a below-grade basement. The building's primary entrance would be located on the east side along Oxford Street; pedestrian access may also be from University Avenue to the north. The North Building would provide space for permanent occupancy of up to 750 people. The parking garage and building loading would be accessed from University Avenue at the western end of the building. The parking garage would be accessed from a vehicle ramp with entrance and egress circulation. The building loading access would be located adjacent to the parking garage vehicle ramp. The parking garage would be open 24 hours a day, seven days a week.

The project would not result in physical changes to existing roadways surrounding the project site. The removal of surface vehicle parking spaces and replacement within a parking structure would not create roadway hazards to adjacent roadways and sidewalks. The project would maintain the existing publicly accessible routes at the project site. See Impact 3.14-4 for specific information about emergency access.

Building Design-Related Hazards

The demolition of existing structures and construction of two new buildings could alter pedestrian-level (i.e., ground level) wind conditions in pedestrian areas in the public rights-of-way such as sidewalks and plazas. Wind can become a "downwash" that flows down the building façade to the ground, a tunnel or channeled flow between buildings, or a combination of these effects.

A pedestrian wind study for the project was prepared by RWDI in January 2024 (Appendix J). The pedestrian wind study identified that the wind speeds on and around the existing site are comfortable for public sitting or public walking throughout the year, which would be appropriate for the intended pedestrian usage in the public areas. With addition of the South Building and the North Building, wind conditions in the area are expected to remain similar to those under existing conditions. Wind speeds are predicted to be comfortable for public sitting at most areas around the perimeter of the two new buildings. Higher wind speeds meeting the criterion for public walking are expected around the northeast part of the project site on University Avenue and the southwest corner of the South Building on Addison Street. Wind conditions are predicted to meet the criterion for public sitting within the proposed courtyard area between buildings. These conditions are suitable for the intended use of surrounding sidewalks and the courtyard. Furthermore, the wind speeds would be reduced with the addition of trees and other large landscaping features, particularly within the courtyard. Therefore, the project would not introduce uncomfortable wind conditions or building design-related hazards in pedestrian areas (RWDI 2024).

Incompatible Uses

The project would introduce two laboratory buildings within the UC Berkeley City Environs land use zone of Downtown Berkeley. The project would be consistent with the UC Berkeley 2021 Long Range Development Plan land use objectives to prioritize utilization of infill or under-developed sites with new facilities to accommodate program needs and to provide opportunity for development of new campus buildings that meet UC Berkeley's programmatic objectives. The project would not modify the existing roadways and would not introduce the use of farm equipment or other heavy equipment that would result in an incompatible use with the potential to create a transportation hazard.

Summary

As discussed above, construction of the project would temporarily increase local traffic. However, a Construction Traffic Management Plan would be required per CBP TRAN-6 to address access, vehicle circulation, and traffic safety impacts related to construction activities. Construction and operation of the project would not modify the existing roadways and there would not be any new sharp curves or hazardous conditions resulting from project implementation. The two new buildings would not generate wind flows that could create pedestrian-level hazards. Furthermore, implementation of the project would not introduce an incompatible use with the potential to create a transportation hazard. Therefore, implementation of the project would not result in hazardous design features or incompatible uses. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.14-4: Implementing the project would not result in inadequate emergency access.

Construction

Project construction is expected to minimally impact existing roadways near the project site but may at times require partial or full closures of existing roads to allow for the installation of project components. Existing emergency access to the surrounding neighborhood would be preserved and impacts to emergency access minimized through adherence to all UC Berkeley and City of Berkeley policies relating to access for emergency vehicles. All existing emergency access routes to and from the project site would be minimally impeded by construction traffic, and construction traffic would be required to use existing truck routes. Additionally, the transportation CBPs related to construction would be implemented as part of the project, as described in Impact 3.14-1, which would require a Construction Traffic Management Plan to maintain adequate emergency access. Therefore, construction of the project would not obstruct emergency access or result in inadequate emergency access.

Operation

Emergency access to the project site would be similar to existing conditions, as described in Section 3.14.2, "Environmental Setting." Although there would be a general increase in vehicle, pedestrian, bicycle, and transit trips, as a result of the project implementation, the project would not result in any physical changes to existing roadways surrounding the site that would adversely affect emergency access. Access to the project would be reviewed by the UC Fire Marshal and Berkeley Fire Department for compliance with their respective standards and regulations to ensure adequate emergency access is provided.

Increases in automobile, bicycle, and pedestrian demand associated with the project would not substantially affect emergency vehicle access patterns; however, additional vehicles associated with implementation of the project could increase delays for emergency response vehicles during peak commute hours. However, emergency responders maintain response plans that include use of alternate routes, sirens, emergency vehicle preemption at traffic signals, and other methods to bypass congestion and minimize response times. In addition, California law requires drivers to yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes. In addition, the project would be in compliance with the City of Berkeley General Plan Policy T-28, Emergency Access, to provide emergency access to all parts of the City and safe evacuation routes.

For these reasons, operation of the project would not obstruct emergency access or result in inadequate emergency access.

Summary

A Construction Traffic Management Plan would be implemented during construction to maintain adequate emergency access. Implementation of the project would not result in any physical changes to existing roadways surrounding the site that would adversely affect emergency access. Project access would be reviewed by the UC Fire Marshal and Berkeley Fire Department for compliance with their respective standards and regulations to ensure adequate emergency access is provided. Therefore, implementation of the project would not obstruct emergency access or result in inadequate emergency access. The impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.15 UTILITIES AND SERVICE SYSTEMS

This section evaluates the availability of existing utility and infrastructure systems (water, wastewater, electricity, telecommunications, and solid waste) to serve the project and the impact of the project on the capacity of these systems. The analysis is based on information published by UC Berkeley and other entities, which include the East Bay Municipal Utility District (EBMUD), City of Berkeley, California Department of Resources Recycling and Recovery (CalRecycle), and Pacific Gas and Electric Company (PG&E). Refer to Section 3.5, "Energy," for an analysis of energy efficiency related to the project pursuant to State CEQA Guidelines, Appendix F requirements. Impacts related to stormwater infrastructure are addressed in Section 3.9, "Hydrology and Water Quality," of this EIR.

Utility services in the project vicinity are provided by various entities, as identified in Table 3.15-1 and discussed in detail in the sections below.

Table 3.15-1 Utilities Providers for the Project Vicinity

Utility	Agency/Provider
Water Supply	East Bay Municipal Utility District
Wastewater Collection and Conveyance	City of Berkeley, East Bay Municipal Utility District
Wastewater Treatment	East Bay Municipal Utility District
Electrical Service	Pacific Gas & Electric
Telecommunications	AT&T, Comcast, Sonic
Solid Waste Collection	UC Berkeley (Cal Zero Waste)

Source: Data compiled by Ascent in 2023.

In response to the Notice of Preparation, EBMUD provided comments related to water supply availability, the capacity of existing wastewater infrastructure, potential recycled water use, and water conservation regulations. These topics are addressed in the "Impact Analysis" section below. The notice of preparation (NOP) and comments received on the NOP are provided in Appendix A.

3.15.1 Domestic Water

REGULATORY SETTING

Federal

Safe Drinking Water Act

The Safe Drinking Water Act, the principal federal law intended to ensure safe drinking water to the public, was enacted in 1974 and has been amended several times. This act authorizes the US Environmental Protection Agency (EPA) to set national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally occurring and manufactured contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the State Water Resources Control Board (SWRCB) conducts most enforcement activities under the Safe Drinking Water Act. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

State

Urban Water Management Planning Act (Senate Bills 610 and 221)

The California Urban Water Management Planning Act, Section 10620 of the Water Code, requires all urban water suppliers in California that provide water to more than 3,000 customers or supply more than 3,000 acre-feet per year

(AFY) to prepare and adopt an urban water management plan (UWMP) and update it every 5 years. This act is intended to support efficient use of urban water supplies and requires the UWMP to compare water supply and demand over the next 20 years for normal years, dry years, and multiple dry years and to determine current and potential recycled water uses.

Senate Bill (SB) 610 and SB 221 were enacted to: (1) ensure better coordination between local water supply and land use decisions and (2) confirm that there is an adequate water supply for new development. Both statutes require city and county decision-makers to review detailed information regarding water availability prior to the approval of large development projects. SB 610 requires the preparation of a water supply assessment for certain types of projects subject to CEQA. UC Berkeley is not subject to the requirements of SB 610 and SB 221; therefore, a water supply assessment is not required for the project.

Water Conservation Act of 2009 (Senate Bill X7-7)

The Water Conservation Act of 2009 (SB X7-7) requires all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita water use by 20 percent by 2020, with an interim goal of a 10 percent reduction in per capita water use by 2015. Effective in 2016, urban retail water suppliers who do not meet the water conservation requirements established by this bill are not eligible for state water grants or loans. The SB X7-7 requires that urban water retail suppliers determine baseline water use and set reduction targets according to specified standards. It also requires that agricultural water suppliers prepare plans and implement efficient water management practices.

2018 Water Conservation Legislation (Senate Bill 606 and Assembly Bill [AB]1668)

In 2018, the California Legislature enacted two policy bills to establish long-term improvements in water conservation and drought planning to adapt to climate change and longer and more intense droughts in California. The California Department of Water Resources (DWR) and the SWRCB will develop new standards for:

- Indoor residential water use;
- Outdoor residential water use;
- Commercial, industrial, and institutional water use for landscape irrigation with dedicated meters; and
- Water loss.

Urban water suppliers will be required to stay within annual water budgets, based on their standards, for their service areas and to calculate and report their urban water use objectives in an annual water use report. For example, the bills define a 55 gallon per person daily standard for indoor residential use until 2025, when it decreases to 52.5 gallons, and further decreases to 50 gallons by 2030. The legislation also includes changes to UWMP preparation requirements.

Water Conservation in Landscaping Act of 2006 (AB 1881)

The Water Conservation in Landscaping Act (AB 1881) required DWR to update the State of California's Model Water Efficient Landscape Ordinance (MWELO) by 2009. Under AB 1881, cities and counties were required to adopt the MWELO by January 31, 2010, or to adopt a different ordinance that is at least as effective in conserving water as the MWELO.

The MWELO was revised in July 2015 via Executive Order B-29-15 to address the ongoing drought and to build resiliency for future droughts. The 2015 revisions to the MWELO increased water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, on-site stormwater capture, and by limiting the portion of landscapes that can be covered in turf.

California Building Code: CALGreen (24 CCR Part 11)

The California Building Standards Commission adopted the nation's first green building standards in July 2008, the California Green Building Standards Code, also known as CALGreen (California Code of Regulations [CCR], Title 24, Part 11). CALGreen applies to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure in California unless otherwise indicated in the code. CALGreen establishes planning and design standards for sustainable site development, including water conservation measures and requirements that new buildings reduce water consumption by 20 percent below a specified baseline. The mandatory provisions of CALGreen became effective January 1, 2011, and the latest version, the 2022 California Green Building Standards Code, became effective on January 1, 2023. The building efficiency standards are enforced through the local building permit process.

California Plumbing Code (24 CCR Part 5)

The California Plumbing Code (CPC) is updated on a three-year cycle. The most recent 2022 CPC was effective January 2023. It includes new standards for plumbing fixtures, new provisions for storm drain systems, and design criteria for potable and recycled water systems.

California Health and Safety Code

A portion of the California Health and Safety Code is dedicated to water issues, including testing and maintenance of backflow prevention devices, coloring of pipes carrying recycled water, and programs addressing cross-connection control by water users.

California Water Code

The Water Code contains statutes surrounding various water-related issues including water shortage emergencies, on-site sewage treatment systems, potable water reuse, greywater systems, appropriation of water, water rights, and the establishment of California water districts. The Water Code also states that for projects subject to CEQA, cities and counties are required to identify the public water system(s) that would serve a project and assess whether the water supply is sufficient to provide for the projected water demand associated with the project considering existing and future uses.

Mandatory Water Conservation

Following the declaration of a state of emergency on July 15, 2014, due to drought conditions, the SWRCB adopted Resolution No. 2014-0038 for emergency regulation of statewide water conservation efforts. These regulations, which went into effect on August 1, 2014, were intended to reduce outdoor urban water use and urge all California households to voluntarily reduce their water consumption by 20 percent. Water companies with 3,000 or more service connections are required to report monthly water consumption to the SWRCB. The SWRCB readopted the regulations several times until Governor Brown issued Executive Order B-40-17 in April 2017, ending the drought emergency and directing the SWRCB to rescind some of its emergency regulations but maintain the parts that prohibit wasteful water use practices until permanent requirements are in place. The wasteful water use practices that are still prohibited include: (1) the application of potable water to outdoor landscapes in a manner that causes excess runoff; (2) the use of a hose to wash a motor vehicle except where the hose is equipped with a shut-off nozzle; (3) the application of potable water to driveways and sidewalks; (4) the use of potable water in nonrecirculating ornamental fountains; and (5) the application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall. Also, urban water suppliers are still required to submit monthly water monitoring reports to the SWRCB.

University of California

UC Sustainable Practices Policy

In 2003, the University of California Office of the President adopted a comprehensive policy of detailed guidelines for green building design and clean energy standards (UC Sustainable Practices Policy), including an annual sustainability reporting requirement. This policy has been revised several times; the most recent version, which became effective in July 2023, commits the UC to implementing actions intended to minimize its impact on the environment and reduce its dependence on nonrenewable energy. The policy covers the areas of green building design, clean energy, climate action, sustainable transportation, sustainable building and laboratory operation, zero waste, sustainable procurement, sustainable food services, sustainable water systems, and sustainable health.

Modeled after SB X7-7, the UC Sustainable Practices Policy establishes a goal to reduce growth-adjusted potable water consumption by 20 percent by 2020 and 36 percent by 2025, when compared to a three-year average baseline from fiscal year 2005–06 to fiscal year 2007–08. At UC Berkeley, the baseline population-adjusted water use was 20,476 gallons (gal)/weighted campus users (WCU)/year. UC Berkeley achieved the 2025 target in 2018, when the population-adjusted water use was 13,186 gal/WCU. In 2019, UC Berkeley's population-adjusted water use was reduced further to 12,861 gal/WCU, which is a 37 percent reduction from baseline water use (UC Berkeley 2023).

The UC Sustainable Practices Policy also requires each UC campus to develop and maintain a Water Action Plan that identifies long-term strategies for achieving these goals and creating sustainable water systems. Also, each UC campus must identify single-pass cooling systems and constant-flow lab equipment and develop a plan for replacement (University of California 2023).

UC Berkeley Resilient Water Plan

The Resilient Water Plan was developed in parallel to the UC Berkeley Campus Master Plan and Long Range Development Plan (LRDP) to provide a more comprehensive approach to water sustainability and resilience, given the university's sustainability goals and the accelerating effects of climate change (UC Berkeley 2023). The plan identifies strategies for reducing UC Berkeley's water usage and improving campus drought resilience. Key goals of the plan include:

- Lower potable water use through comprehensive conservation and efficiency measures for buildings, mechanical systems, and campus grounds;
- Evaluate water reclamation and reuse facilities to reduce potable water use through increased use of non-potable water for campus cooling systems, landscape irrigation, and toilet flushing;
- Reduce the strain on campus sewer systems, and reduce wastewater discharge to downstream municipal systems;
- Provide energy savings through reduced potable water use and evaluate synergies with proposed campus energy systems; and
- Create living laboratory opportunities by integrating teaching and research into water conservation and reuse infrastructure.

UC Berkeley Campus Drought Response Program

UC Berkley implements several water conservation measures as part of its drought response program. Measures relevant to the project include:

- Pressure washing sidewalks, stairs, patios, and courtyards as needed for health and safety reasons. When outdoor areas are cleaned, non-potable well water is primarily used;
- Exploring opportunities to capture nonpotable water for dust control during construction; and
- Continuing water conservation outreach efforts across campus.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. Section 33 of the UC Berkeley Campus Design Standards details the requirements governing the installation, operation, and maintenance of utility systems on campus. Campus Design standards for water distribution piping, fire service mains, and water distribution equipment are under this section.

UC Berkeley also complies with the UC Facilities Manual, which includes policies, procedures, and guidelines for planning, design, construction contracting, and facilities management.

UC Berkeley Water Supply Review Policy

During the preliminary project design stage for a new development project, staff from the UC Berkeley Facilities Services, Engineering and Technical Services requests the project design engineer to ensure that the project would not adversely impact the delivery of water within the affected zone and that the current infrastructure is adequate to supply the proposed facility. If water supply is inadequate, the water system is upgraded to provide adequate water flow and pressure to the project site.

UC Berkeley Continuing Best Practices

UC Berkeley implements continuing best practices (CBPs) to ensure that environmental impacts from development and ongoing UC Berkeley operation would be reduced or avoided to the greatest extent feasible. CBPs are implemented by UC Berkeley as part of development efforts and ongoing operation. Relevant project-specific CBPs would be implemented as part of the project, as described in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operation, are listed where relevant in the impact analyses presented in this section, to illustrate how they would help to reduce or avoid environmental impacts from the project. A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

Regional

East Bay Municipal Utility District

Urban Water Management Plan

In compliance with the Urban Water Management Planning Act and The Water Conservation Act of 2009, all urban water suppliers are required to prepare, adopt, and file a UWMP with DWR every five years. The project site is served by EBMUD, which adopted its first UWMP in 1985 and completed the most recent update in 2020, entitled UWMP 2020 (EBMUD 2021a). The 2020 UWMP describes water demands, water supply sources, and supply reliability for its service area in five-year increments for average years, single-dry years, and multiple-dry years. The UWMP also includes a Water Shortage Contingency Plan, which describes procedures and response actions in case of shortage emergencies, demand management measures to increase water use efficiency, and current and planned water conservation efforts (EBMUD 2021b).

Water Supply Management Program 2040 Plan

EBMUD prepared the Water Supply Management Program (WSMP) 2040 plan to identify and recommend solutions to meet dry-year water needs through the year 2040 (EBMUD 2012). The WSMP 2040 advocates performance objectives for EBMUD's water planning, to the benefit of its customers and the environment. The WSMP 2040 continues the EBMUD's commitment to water management solutions by extending and expanding the current goals for rationing, conservation, and recycled water through 2040. Supplemental supply components are identified to ensure that EBMUD will reliably provide water to its customers into the future without extreme burden from rationing.

Water Conservation and Service Regulations

EBMUD will provide new or expanded water service to customers only when all applicable water-efficiency measures have been installed. Applicants requesting water service must supply plumbing and landscaping plans for review and approval from EBMUD's Water Conservation Division. For indoor water use, applicants must comply with CALGreen. For outdoor water use, applicants must submit landscape plans, irrigation plans and schedule, and water budget calculations, as per EBMUD's Section 31, Water Efficiency Regulations.

Local

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of impacts on domestic water in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of impacts on domestic water. Therefore, local plans, policies, and regulations are not provided herein.

ENVIRONMENTAL SETTING

Water Supply Sources

EBMUD supplies water to parts of Alameda and Contra Costa counties, including the project site. Approximately 1.4 million people are currently served by EBMUD's water system in a 332-square-mile area, which extends from Crockett on the north, southward to San Lorenzo and portions of Hayward (encompassing the major cities of Oakland and Berkeley), eastward from San Francisco Bay to Walnut Creek, and south through the San Ramon Valley (including Alamo, Danville, and San Ramon) (EBMUD 2021a).

The EBMUD water supply system collects, transmits, treats, and distributes high-quality water from its primary water source, the Mokelumne River. Based on the historical average, approximately 90 percent of the raw water entering EBMUD's system originates from the Mokelumne River watershed. The Mokelumne Aqueducts convey the Mokelumne River supply from Pardee Reservoir across the Sacramento-San Joaquin River Delta to local storage and treatment facilities in the East Bay. After treatment, water is distributed to the incorporated cities and unincorporated communities in Alameda and Contra Costa counties within EBMUD's service area. EBMUD has water rights that allow for delivery of up to a maximum of 325 million gallons per day (MGD) from the Mokelumne River, subject to the availability of Mokelumne River runoff and numerous flow release obligations (EBMUD 2021a).

The remaining approximately 10 percent of EBMUD's water supply originates as local runoff from the East Bay area watersheds, which is stored in the terminal reservoirs within EBMUD's service area. The availability of water from local runoff depends on hydrologic conditions and reservoir storage availability. Local runoff, on average, supplies the East Bay with 23 MGD during normal hydrologic years. In dry and critically dry years, evaporation can exceed runoff, resulting in net loss of local supply (EBMUD 2021a).

During multi-year drought conditions, the Mokelumne River and local runoff alone cannot meet EBMUD's projected customer demands, even with mandatory water use restrictions. Furthermore, EBMUD's Mokelumne River supply is expected to be reduced as demands on the Mokelumne River increase from the growing needs of users in Amador, Calaveras, and San Joaquin counties with water rights that predate those of EBMUD (EBMUD 2021a).

EBMUD has identified additional sources of water supply to meet long-term demand. In 1970, EBMUD executed a contract with the US Bureau of Reclamation (USBR) for delivery of Central Valley Project water from the American River. EBMUD's current contract with USBR provides for delivery of up to 133,000 acre-feet (AF) in a single qualifying year, not to exceed a total of 165,000 AF in three consecutive qualifying years. EBMUD is also exploring partnerships with other agencies to supplement water supplies, with programs that include:

- Conjunctive Use and Groundwater Banking: EBMUD is exploring several conjunctive use and groundwater banking programs/exchange programs. Specifically, EBMUD has completed Phase 1 of the Bayside Groundwater Project that enables EBMUD to inject drinking water into the East Bay Plan groundwater basin during wet years and extract, treat, and distribute the groundwater as a supplemental supply during drought periods. EBMUD is evaluating future project phases to expand on this operation. EBMUD is also participating in the Demonstration Recharge Extraction and Aquifer Management Pilot Project to inform the potential for implementing a larger, longer-term groundwater banking project to provide dry-year supply and address over-drafted groundwater conditions.
- Water Transfers: EBMUD has developed a water transfer program to secure dry-year water supplies to meet customer demands. EBMUD is partnering with the Placer County Water Agency on developing a long-term transfer agreement and is working with the Yuba County Water Agency on opportunities to purchase transfer water during dry years.
- Expansion of Surface Water Storage: EBMUD also reached an agreement with Contra Costa Water District to use storage space in the recently expanded Los Vaqueros Reservoir, with the option of purchasing up to 2,000 AF of water.
- Bay Area Regional Desalination Project: EBMUD is participating in efforts to explore the development of a regional desalination plant.

Beginning in 2008, EBMUD began providing recycled water to customers through its East Bayshore Recycled Water Project. EBMUD currently produces an annual average of 0.2 MGD of recycled water at the East Bayshore Water Recycling Plant and distributes this water for irrigation, toilets, and building cooling systems in parts of the cities of Oakland and Emeryville. As a future phase of the East Bayshore Recycled Water Project, EBMUD has plans to expand its recycled water program to customers in the cities of Berkeley, Albany, and Alameda. EBMUD's Updated Recycled Water Master Plan identifies a non-potable reuse project that would provide up to 2.6 MGD of recycled water for landscape irrigation and industrial uses in these cities. EBMUD anticipates increasing deliveries of recycled water to these cities by 2030, with construction activities for the larger expansion scheduled from 2030 to 2039. Potential future project components of the non-potable reuse project include 21 miles of new pipelines, including recycled water pipelines within the City of Berkeley, and a new pump station serving customers in the UC Berkeley area (EBMUD 2023, EBMUD 2019).

Water Demand

EBMUD's Water Shortage Contingency Plan includes a supply and demand assessment, summarized in Table 3.15-2. The assessment indicates that EBMUD can meet customer demand through 2050 during normal years and single dry years; however, during multi-year droughts, even with customer demand measures in place, EBMUD will need to obtain supplemental supplies to meet customer demand (EBMUD 2021b).

Table 3.15-2 East Bay Municipal Utility District Supply and Demand Assessment, 2020-2050

Scenario	Supply Source	2020	2025	2030	2035	2040	20445	2050
Normal Year	Mokelumne Supply (MGD)	>181	>186	>190	>194	>201	>209	>218
	EBMUD Demand (MGD)	181	186	190	194	201	209	218
	Need for Water (TAF)	0	0	0	0	0	0	0
Single Dry Year	Mokelumne Supply (MGD)	121	126	129	132	138	144	151
	CVP Supplies (MGD)	60	60	60	60	60	60	60
	Total Supplies (MGD)	181	186	189	192	198	204	211
	Voluntary Rationing (%)	0	0	1	1	2	2	3
	Need for Water (TAF)	0	0	0	0	0	0	0
Second Dry Year	Mokelumne Supply (MGD)	82	86	89	92	98	104	111
	CVP Supplies (MGD)	74	74	74	74	74	74	74
	Total Supplies (MGD)	156	161	164	167	172	178	185
	Mandatory Rationing (%)	13	13	13	14	14	14	15
	Need for Water (TAF)	0	0	0	0	0	0	0
Third Dry Year	Mokelumne Supply (MGD)	141	145	146	145	132	118	105
	CVP Supplies (MGD)	12	12	12	12	12	12	12
	Total Supplies (MGD)	153	157	158	157	144	130	117
	Mandatory Rationing (%)	15	15	15	15	15	15	15
	Need for Water – Base Condition (TAF)	0	0	0	0	28	52	75
	Need for Water – High Demand Scenario (TAF)	0	0	21	35	60	97	125
	Need for Water – Extreme Drought Scenario (TAF)	0	0	0	13	32	55	84

Notes: % = percent; CVP = Central Valley Project; MGD = million gallons per day; TAF = thousand acre-feet

Source: EBMUD 2021a, Table W-3.

EBMUD's Drought Management Program identifies measures that assist with demand and supply management during drought conditions. Response actions under moderate drought conditions include voluntary rationing, conducting public outreach, initiating a water waste reporting program, issuing home water reports, issuing water conservation rebates, conducting water audits, providing water saving devices, and expanding the water loss control program. Response actions during significant, severe, and critical drought conditions include mandatory rationing, issuing surcharges and excessive use penalties, and providing field enforcement of regulations and water use restrictions, in addition to the actions described for moderate drought conditions (EBMUD 2021b).

In addition to encouraging conservation, EBMUD has developed a portfolio of water supply projects, described under the "Water Supply Sources" section above, to help supplement any shortage in its water supply. During extreme and catastrophic water shortage conditions, EBMUD has also explored short-term, temporary options to augment its supply. Temporary dry year supplemental water supply options include trucking recycled water for customers for approved uses, drawing from reserve supplies, and pursing emergency transfers or exchanges (EBMUD 2021b).

Water Supply Infrastructure

EBMUD's water supply system consists of a network of reservoirs, aqueducts, pipelines, water treatment plants, pumping plants, and other distribution facilities and pipelines that convey Mokelumne River water from Pardee Reservoir to EBMUD customers. The Orinda Water Treatment Plant primarily serves areas west of the Oakland-Berkeley Hills. The plant has a permitted capacity of 175 MGD (EBMUD 2021a).

After the water is treated at one of the water treatment plants, it is distributed throughout EBMUD's service area. Approximately 50 percent of treated water is distributed to customers purely by gravity. The water distribution network includes 4,200 miles of pipe, 125 pumping plants, and 165 water distribution reservoirs (EBMUD 2021a). Existing water mains in the roadways adjacent to the project site include a 12-inch pipeline beneath Oxford Street, a 6-inch pipeline beneath University Avenue, and a 10-inch pipeline beneath Addison Street.

UC Berkeley Water Use

The UC Berkeley Resilient Water Plan documents historic water trends at UC Berkeley from a three-year baseline (2005-2007) through 2019. During this period, the UC Berkeley campus grew by 1 million square feet. However, total campus water use and population-adjusted water use trended downwards over the same period, driven by conservation and efficiency efforts implemented by UC Berkeley. When compared to baseline conditions, water use decreased by 36 percent in 2018 and by 37 percent in 2019. Key conservation efforts include fixture retrofits, educational initiatives, irrigation system upgrades, lab policy changes, and mechanical equipment upgrades (UC Berkeley 2023).

The total annual water use for UC Berkeley lab buildings was 95.9 million gallons, or approximately 16 percent of total campus water use, in the 2018-2019 fiscal year. UC Berkeley published a Green Labs Action Plan, which includes immediate and long-term targets for implementing water savings (UC Berkeley 2023).

IMPACT ANALYSIS AND MITIGATION MEASURES

Impacts related to water supply and associated infrastructure were identified by determining adequacy of existing infrastructure and comparing existing service capacity against future demand from project implementation.

Methodology

Baseline water usage is estimated using default assumptions from the California Emissions Estimator Model based on the square footage and land uses associated with the existing uses on the project site (refer to Appendix C, "Air Quality and Greenhouse Gas Emissions Data," for modeling assumptions). Because University Hall is currently unoccupied, existing water usage for this building is assumed to be 0 AFY. The annual baseline water usage for the existing commercial buildings (2154-2160 University Avenue and 2136-2140 University Avenue) at the project site is estimated to be 5 AFY. Because all water usage for the existing commercial buildings is indoor, the baseline wastewater generation is assumed to be equivalent to baseline water usage of 5 AFY, which averages approximately 4,489 gallons per day.

Projected water usage under the project is calculated using a nonresidential water demand factor of 0.07 gallon per day per square foot (gallon/day/SF). This water demand factor was used in the preparation of the LRDP EIR to estimate the water demand associated with buildout of the 2021 LRDP, which conservatively assumes that water demand would remain constant between 2018 and 2036. The water demand factor is based on UC Berkeley water usage data from 2018 and accounts for irrigation, building water usage, and mechanical cooling demand (UC Berkeley 2021).

The water demand factor does not account for increased water conservation measures that have been implemented subsequent to 2018 and additional measures that are likely to be implemented in the future. UC Berkeley's general water use has consistently trended downwards for both total campus annual use and population-adjusted campus use. This downward trend has been driven primarily by conservation efforts (e.g., fixture retrofits, educational initiatives, irrigation system upgrades, lab policy changes, and mechanical equipment upgrades) and as a response to California's 2012 to 2016 statewide drought (UC Berkeley 2023). As UC Berkeley continues to implement conservation efforts to reduce water use in accordance with the UC Sustainable Practices Policy and UC Berkeley Resilient Water Plan, such as identifying opportunities to use recycled water, this downward trend is expected to continue. Further, the project would be designed to achieve or exceed the US Green Building Council's LEED Gold certification and comply with current building code requirements pertaining to water conservation, including the CALGreen Code and CPC. Accordingly, the project would be subject to more stringent water conservation and efficiency requirements than older campus buildings that contributed to the 2018 water usage data. Therefore, the projected water usage calculated from the water demand factor of 0.07 gallon/day/SF represents a conservative estimate of the project's likely actual water demand.

Thresholds of Significance

The project would result in a significant impact related to water supply services if it would:

- require or result in the relocation or construction of new or expanded water, the construction or relocation of which could cause significant environmental effects; or
- have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;

Impact Analysis

Impact 3.15-1: Implementing the project would not require or result in the relocation or construction of new or expanded water supply infrastructure that would cause significant environmental effects.

Existing EBMUD water mains in the roadways adjacent to the project site include a 12-inch pipeline beneath Oxford Street, a 6-inch pipeline beneath University Avenue, and a 10-inch pipeline beneath Addison Street. Domestic water would be supplied to the new buildings through an 8-inch pipe connecting to the existing 12-inch EBMUD water main located along the eastern boundary of the project site, underneath Oxford Street. Fire water service for each building would require a separate connection to the same water main through an 8-inch pipe. A fire water tank and fire pump room would be located in one of the lowest below-ground stories of each building.

These connections to EBMUD's water system are considered part of the project and would occur within existing roadways in areas that have previously been disturbed. The impacts associated with their construction, including ground disturbance and temporary lane closures along Oxford Street, are analyzed in other sections of this EIR. For example, Section 3.2, "Air Quality," Section 3.7, "Greenhouse Gas Emissions and Climate Change," and Section 3.10, "Noise," evaluate increases in air pollutant and greenhouse gas emissions and noise levels associated with all construction activities, including any ground disturbance needed for tie-ins to existing utility infrastructure, as well as increases in emissions associated with the project's utility demands. Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," evaluates the potential impacts that trenching and excavation, including any ground disturbance needed for tie-ins to existing utility infrastructure, may have on buried resources. Section 3.6, "Geology and Soils," Section 3.8, "Hazards and Hazardous Materials," and Section 3.9, "Hydrology and Water Quality," evaluate the potential impacts that trenching and excavation, including any ground disturbance needed for tie-ins to existing utility infrastructure, may have related to erosion and siltation, degradation of water quality, and the release of contamination into the environment.

As discussed further under Impact 3.15-2, project implementation would increase the volume of water conveyed through EBMUD's domestic water supply system. UC Berkeley has no authority or jurisdiction to provide upgrades to EBMUD's system to accommodate increases in flows. However, UC Berkeley would implement CBP USS-1 and USS-4 as part of the project to ensure that EBMUD infrastructure has sufficient capacity to accommodate the project:

- CBP USS-1: For development that increases water demand, UC Berkeley will continue to evaluate the size of existing distribution lines as well as pressure of the specific feed affected by development on a project-by-project basis, and necessary improvements will be incorporated into the scope of work for each project to maintain current service and performance levels. The design of the water distribution system, including fire flow, for new buildings will be coordinated among UC Berkeley, the East Bay Municipal Utility District, and the City of Berkeley Public Works Department and Fire Department.
- CBP USS-4: UC Berkeley will analyze water and sewer systems on a project-by-project basis to determine specific capacity considerations for both UC Berkeley systems and off-site municipal systems in the planning of any project proposed under the LRDP.

UC Berkeley would be required to pay capital facilities fees to EBMUD in conformance with Section 54999 of the California Government Code. These fees would be used by EBMUD to continually upgrade components of its utility infrastructure systems through capital improvement programs. EBMUD would be responsible for evaluating the environmental effects of any new or expanded infrastructure within its service area at the time such improvements are proposed.

UC Berkeley would also implement CBP USS-3 to reduce water demand and ensure that EBMUD infrastructure has sufficient capacity to accommodate the project:

- CBP USS-3: UC Berkeley will continue to incorporate specific water conservation measures into project design to reduce water consumption and wastewater generation. This could include the use of special air-flow aerators, water-saving shower heads, flush cycle reducers, low-volume toilets, weather-based or evapotranspiration irrigation controllers, drip irrigation systems, and the use of drought resistant plantings in landscaped areas, and collaboration with the East Bay Municipal Utility District to explore suitable uses of recycled water.

In accordance with CBP USS-3, the project design incorporates water conservation measures to reduce water demand in compliance with State-mandated water-efficiency programs and water use reductions. For example, indoor water conservation measures that would be implemented under the project include the use of special air-flow aerators, flush cycle reducers, and low-volume toilets. In addition, all landscaping would include native and/or locally adapted, drought-tolerant plant materials. Therefore, the demand for new or expanded water conveyance infrastructure would be minimized to the extent feasible.

CBP USS-3 also requires UC Berkeley to explore suitable uses of recycled water for the project. As discussed in "Environmental Setting" section above, EBMUD provides recycled water to customers through its East Bayshore Recycled Water Project. The project site is within EBMUD's service area for the East Bayshore Recycled Water Project; however, existing recycled water pipelines do not extend to the project site. EBMUD has plans to expand its recycled water program to customers in the City of Berkeley (EBMUD 2023). Therefore, there is potential for UC Berkeley to use recycled water for irrigation, toilets, and building cooling systems in the future to meet its anticipated water demand. As noted above, UC Berkeley has no authority or jurisdiction to provide upgrades to EBMUD's system. Accordingly, the environmental effects of constructing recycled water infrastructure would be evaluated by EMBUD at the time such infrastructure is proposed.

As required by law, utility connections would be constructed in accordance with all applicable building codes and standards to ensure an adequately sized and properly constructed transmission and conveyance system. Any necessary connections would be constructed prior to building occupancy and in a manner that would minimize the potential for utility service disruption of existing uses. In addition, tie-ins to existing water infrastructure are part of the project and the potential environmental impacts resulting from these tie-ins are evaluated in this EIR. For example, Section 3.2, "Air Quality," Section 3.7, "Greenhouse Gas Emissions and Climate Change," and Section 3.10, "Noise," evaluate increases in air pollutant and greenhouse gas emissions and noise levels associated with all construction activities, including any ground disturbance needed for tie-ins to existing utility infrastructure, as well as increases in emissions associated with the project's utility demands. Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," evaluates the potential impacts that trenching and excavation, including any ground disturbance needed for tie-ins to existing utility infrastructure, may have on buried cultural resources. Section 3.6, "Geology and Soils," Section 3.8, "Hazards and Hazardous Materials," and Section 3.9, "Hydrology and Water Quality," evaluate the potential impacts that trenching and excavation, including any ground disturbance needed for tie-ins to existing utility infrastructure, may have related to erosion and siltation, degradation of water quality, and the release of contamination into the environment.

Based on the above discussion, the project impacts related to the construction of water infrastructure needed to serve the project would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

Impact 3.13-2: There would be sufficient water supplies to serve the project during normal, dry, and multiple dry years.

The project would result in the development of two laboratory buildings totaling approximately 486,000 gross square feet and is anticipated to generate a net increase of up to 1,074 new employment opportunities. This growth would be within the 2021 LRDP UC Berkeley employment projection. Furthermore, the addition of 1,074 new employment opportunities is a very conservative estimate because it assumes that all future employees would be new when it is likely that many will be existing UC Berkeley or UC-affiliated employees who will relocate to the new buildings. Development and operation of these buildings would increase water demand at UC Berkeley. Assuming a nonresidential water demand factor of 0.07 gallon/day/SF (see "Analysis Methodology" above), the project is expected to have a water demand of 34,020 gallons per day, equivalent to approximately 38.1 AFY. As discussed under the "Analysis Methodology" section above, the baseline water usage at the project site is estimated to be 5 AFY. Therefore, the project would result in an increase in water usage of approximately 33.1 AFY compared to existing conditions.

Water would be supplied to the project site by EBMUD. EBMUD's UWMP includes projections of water supply and demand within its service area through 2050. These projections account for the campus population growth anticipated at UC Berkeley. EBMUD's UWMP indicates that EBMUD can meet customer demand through 2050 during normal years and single dry years; however, during multi-year droughts, even with customer demand measures in place, EBMUD will need to obtain supplemental supplies to meet customer demand (EBMUD 2021b). Therefore, EBMUD is exploring projects and partnerships with other agencies to supplement water supplies to meet long-term demand, including conjunctive use and groundwater banking, water transfers, expansion of surface water storage, a potential regional desalination project, and trucking recycled water. These projects and partnerships are described further in the "Environmental Setting" section above.

To reduce water demand, the project would be designed to achieve or exceed the US Green Building Council's LEED Gold certification and comply with regulations, plans, and policies that pertain to water conservation, including the CALGreen Code, CPC, MWELO, UC Sustainability Practices Policy, and UC Berkeley Resilient Water Plan. As part of the project, UC Berkeley would also implement CBP USS-3 and USS-4 (listed under Impact 3.15-1 above) to reduce water demand in compliance with State-mandated water-efficiency programs and water use reductions.

As discussed under Impact 3.15-1 above, CBP USS-3 requires implementation of indoor water conservation measures, including the use of special air-flow aerators, flush cycle reducers, and low-volume toilets. In addition, all landscaping would include native and/or locally adapted and drought-tolerant plant materials. Landscape irrigation systems would include weather-based or evapotranspiration irrigation controllers, drip irrigation systems. UC Berkeley would also coordinate with EBMUD to explore suitable uses of recycled water. As discussed in the "Environmental Setting" section, EBMUD provides recycled water to customers through its East Bayshore Recycled Water Project. The project site is within EBMUD's service area for the East Bayshore Recycled Water Project; however, existing recycled water pipelines do not extend to the project site. EBMUD has plans to expand its recycled water program to customers in the City of Berkeley (EBMUD 2023). Therefore, there is potential for UC Berkeley to use recycled water for irrigation, toilets, and building cooling systems in the future to meet a portion of the project's anticipated water demand. CBP USS-4 requires UC Berkeley to evaluate the capacity of off-site municipal water systems during project planning.

Based on the above discussion, compliance with regulations, plans, and policies pertaining to water conservation and implementation of UC Berkeley CBPs would reduce the water demand generated by the project. With a combination of water conservation measures, acquisition of supplemental water supplies, and the potential for future recycled water use, EBMUD anticipates having sufficient water supplies to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, the impact on water supplies would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.15.2 Wastewater

REGULATORY SETTING

Federal

Clean Water Act

The Clean Water Act of 1972 regulates the discharge of pollutants into watersheds throughout the nation. It is the primary federal law that governs water pollution and is implemented by the EPA. Under the Clean Water Act, the EPA sets wastewater standards and makes it unlawful to discharge pollutants from a point source into any navigable waters without obtaining a permit. Point sources include any conveyances, such as pipes and human-made drainage channels, from which pollutants may be discharged.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permitting program was established as part of the Clean Water Act to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable connections and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities. Wastewater discharge is regulated under the NPDES permitting program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

State

State Water Resources Control Board

On May 2, 2006, the SWRCB adopted Statewide General Waste Discharge Requirements (WDR) (Order No. 2006-0003-DWQ) and a monitoring and reporting program (Order No. WQ-2013-0058-EXEC) for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipes. The order provides a consistent statewide approach to reducing sanitary sewer overflows (SSO). The WDRs require public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans (SSMP) and report all SSOs to the SWRCB's online reporting system.

The SWRCB has delegated authority to nine regional water quality control boards (RWQCB) to enforce these requirements within their regions. The project site is within the jurisdiction of the San Francisco Bay RWQCB (Region 2), which has responsibility for issuing and enforcing NPDES permits in the region. NPDES permits allow the RWQCB to regulate where and how waste is disposed, including the discharge volume and effluent limits of waste and the monitoring and reporting responsibilities of the discharger. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring permit compliance.

On December 6, 2022, the SWRCB adopted Statewide General WDR (Order No. 2022-0103-DWQ), which supersedes Order No. 2006-0003-DWQ. The new WDR requires the reporting and mitigation of spills that result from the exfiltration (exiting) of sewage from the sanitary sewer system through cracks in pipes, misaligned joints, seepage through porous materials, or other means, to groundwater, the ground surface, or a surface water of the state. The SSMP is required to assess any portion of the sanitary sewer system within the vicinity of a receiving water with a bacteria-related impairment on the most recent Section 303(d) list to determine if exfiltration is potentially contributing to the impairment. The Emergency Response Plan in the SSMP must also address the potential for exfiltration, as well as sewer system overflows.

Sanitary District Act of 1923

The Sanitary District Act of 1923 (Health and Safety Code Section 6400 et seq.) authorizes the formation of sanitation districts and enables the sanitation districts to construct, operate, and maintain facilities for the collection, treatment, and disposal of wastewater.

California Government Code: Capital Facilities Fees

Section 54999 of the California Government Code states that any public agency providing utility service to another public agency after July 21, 1986, may charge a capital facilities fee. However, the imposition of those fees on school districts, community college districts, the California State University, the UC, or any state agency is subject to the following limitations:

- Fees would be limited to the cost of capital construction or expansion.
- Fees would be imposed only after an agreement has been negotiated by the public agency and the service provider.
- The service provider must demonstrate that the fee is nondiscriminatory, i.e., the fee must not exceed an amount determined on the basis of the same objective criteria and methodology applied to comparable nonpublic users and is not in excess of the proportionate share of the cost of the facilities of benefit to the entity property being charged, based upon the proportionate share of use of those facilities.
- The service provider must demonstrate that the amount of the fee does not exceed the amount necessary to provide capital facilities for which the fee is charged.

Pursuant to Government Code Section 54999, the payment of statutorily compliant fees constitutes adequate CEQA mitigation.

University of California

UC Berkeley Sewer System Management Plan

UC Berkeley prepared an SSMP in August 2023, which meets the SSMP requirements outlined in WDR General Order No. 2006-0003-DWQ and the SWRCB monitoring and reporting program Order No. WQ-2013-0058-EXEC, as discussed under the "State Water Resources Control Board" section above. The purpose of the SSMP is to:

- Provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system to provide reliable service in the future;
- Minimize infiltration/inflow;
- Reduce and prevent SSOs; and
- Help mitigate any SSOs that do occur.

The required due date for UC Berkeley's SSMP update is August 2, 2025, at which time the SSMP will be updated to meet the requirements outlined in General Order No. 2022-0103-DWQ.

UC Berkeley Wastewater Discharge Permit

The current wastewater discharge permit (No. 06600592) issued by EBMUD to UC Berkeley is dated December 30, 2020, and covers all wastewater discharges from UC Berkeley into the community sewer. UC Berkeley must comply with EBMUD's Wastewater Control Ordinance and EBMUD's Wastewater Discharge Standard Terms and Conditions. UC Berkeley cannot discharge wastewater into the community sewer system that exceeds the local effluent limitations. The permit requires UC Berkeley to submit the following reports to EBMUD annually:

- An updated wastewater toxics management plan or self-certification that the plan on file is current and is being implemented.
- An updated plan for drain disposal restrictions for chemicals or self-certification that the plan on file is current and is being implemented.
- An updated slug control plan, which is designed to eliminate or minimize the potential for accidental discharge of pollutants to the sanitary sewer system, or self-certification that the plan on file is current and is being implemented.

The Wastewater Toxics Management Plan, dated July 2019, incorporates all pollution prevention requirements in the permit. The purpose of this plan is to prevent toxic organic chemicals or heavy metals from being discharged into the sanitary sewer system and disrupting the bacteria digesters at the EBMUD treatment plant. The plan includes an information and education program, a chemical inventory program, sink postings with drain disposal prohibitions, a photographic fixer management program, a mercury thermometer exchange program, a slug control plan, and standard operating procedures and specifications for wastewater management from UC Berkeley buildings and laboratories.

The purpose of the July 2020 Wastewater Slug Control Plan is to eliminate or minimize the potential for an accidental discharge of pollutants that could reach the sanitary sewer and cause a violation of UC Berkeley's EBMUD sewer discharge permit. The slug control plan describes procedures for identifying potential spill sources, implementing preventative measures, conducting spill response, and notifying the appropriate authorities in the event of an accidental slug discharge to the sanitary sewer. In addition, the plan presents best management practices for preventing slug discharges to sanitary sewers. The plan applies to all UC Berkeley operations where there is a potential for slug discharges, including research and teaching laboratories, facilities operations, food preparation, construction sites, and hazardous waste accumulation areas.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues. Section 33 of the UC Berkeley Campus Design Standards details the requirements governing the installation, operation, and maintenance of UC Berkeley utility systems. Campus Design standards for sewer lines, joints, fittings, and utility holes are included under this section.

UC Berkeley also complies with the UC Facilities Manual, which includes policies, procedures, and guidelines for planning, design, construction contracting, and facilities management.

UC Berkeley Continuing Best Practices

As described under Section 3.15.1, "Domestic Water," above, UC Berkeley implements CBPs to ensure that environmental impacts from development and ongoing UC Berkeley operation would be reduced or avoided to the greatest extent feasible. CBPs are implemented by UC Berkeley as part of development efforts and ongoing operation. Relevant project-specific CBPs would be implemented as part of the project, as described in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operation, are listed where relevant in the impact analyses presented in this section, to illustrate how they would help to reduce or avoid environmental impacts from the project. A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

Regional

East Bay Municipal Utility District

Wastewater Treatment Plant NPDES Permit

The NPDES permit for EBMUD's Special District No. 1 Main Wastewater Treatment Plant (MWWTP) and interceptor conveyance system was issued by the San Francisco Bay RWQCB as Order No. R2-2020-0024 (NPDES Permit CA0037702), adopted on September 9, 2020. The permit details discharge prohibitions, effluent limitations on the discharge of treated wastewater to the Central San Francisco Bay, and monitoring and reporting requirements.

Sewer System Management Plan

EBMUD has developed an SSMP in accordance with state regulations to manage, operate, and maintain its sanitary sewer collection system. The SSMP was prepared pursuant to the requirements of SWRCB Order No. 2006-003-DWQ and the SWRCB monitoring and reporting program Order No. WQ-2013-0058-EXEC, as discussed under the "State Water Resources Control Board" section above. The SSMP describes EBMUD's operation and maintenance program; design and performance standards; emergency response plan; SSO notification, reporting, and record keeping; and system evaluation and capacity assurance plan (EBMUD 2022).

Wastewater Control Ordinance

The EBMUD wastewater control ordinance (adopted by Ordinance No. 355-11 and amended by Ordinance No. 358-13) became effective on August 22, 2013. The purpose of the ordinance is to regulate the interception of wastewater and industrial wastes and to control wastewater that is discharged to EBMUD's wastewater disposal facilities. The regulations include provisions for source control to monitor the quantity, quality, and flow of wastewater and industrial waste. The regulations require charges for use of wastewater disposal facilities, which are designed to achieve an equitable recovery of the capital and operating costs of such facilities. The regulations also include provisions for enforcement and penalties for violations (EBMUD 2013).

Regional Private Sewer Lateral Ordinance

The EBMUD Regional Private Sewer Lateral Ordinance became effective on May 24, 2019. The ordinance establishes regulations for the inspection, testing, repair, replacement, and ongoing maintenance of private sewer laterals within the sewer service areas of the cities of Alameda, Albany, Emeryville, Oakland, and Piedmont and the Stege Sanitary District. The purpose of the ordinance is to provide for the operation and maintenance of EBMUD's wastewater conveyance and treatment facilities in a reliable and serviceable manner and to reduce infiltration and inflow into the regional sanitary sewer system.

Local

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Because the City of Berkeley provides wastewater service to the project site, the project's connection to the existing wastewater infrastructure would be required to comply with Berkeley's regulations. Therefore, the following local plans and regulations are provided for informational purposes only to provide context as they influence regional conditions related to wastewater.

City of Berkeley Private Sewer Lateral Ordinance

The City of Berkeley passed the Private Sewer Lateral Ordinance in 2014, as encoded in the Berkeley Municipal Code, Chapter 17.24. This ordinance requires that no later than January 1, 2024, every public entity over which the City has jurisdiction shall obtain a sewer lateral certificate or otherwise demonstrate to the City that its sewer laterals are in compliance with Chapter 17.24. UC Berkeley has the discretion as a state institution to develop and implement its own plan to inspect and repair its sewer laterals, provided the program is as stringent as what is required by the 2014 consent decree between EPA, the RWQCB, and EBMUD. UC Berkeley will implement an equivalent program with the following timelines and conditions:

- By 2025, UC Berkeley will perform a current condition assessment of all sanitary sewer laterals for properties where UC Berkeley owns and maintains the sanitary sewer lateral.
- By 2035, UC Berkeley will rehabilitate any sanitary sewer laterals that have deficiencies and will certify that each lateral is water- or airtight and free of roots, structural defects, and inflow/infiltrations.

UC Berkeley's Construction and Design Standards specify that all work must conform to the most recent editions of the CPC. Section 712 of the CPC specifies the water and air testing methods for sewer drainage pipes and is more stringent than the testing requirements of the Berkeley Municipal Code and the Regional Consent Decree. During testing, a UC Berkeley representative in the Inspection Services department will be on-site to verify compliance with the CPC test procedures for all sanitary sewer laterals, and UC Berkeley's Division of Real Estate will approve and maintain records of test certificates.

There are two situations in which UC Berkeley does not plan to conduct lateral inspections:

- Laterals installed or rehabilitated after 2000 where records indicate that the lateral was tested to standards that meet or exceed those required by the Regional Consent Decree.
- Laterals connected to properties where demolition or significant redevelopment will commence by 2025, and the plans include installation of a new sewer lateral or rehabilitation of an existing lateral.

If any repair work encroaches on a City of Berkeley property, UC Berkeley will coordinate with the City of Berkeley to repair the sanitary sewer line, if necessary. Connections to the City of Berkeley's existing sanitary sewer system would be completed in accordance with the City's Private Sewer Lateral Ordinance.

<u>City of Berkeley General Plan</u>

The City of Berkeley General Plan Environmental Management Element contains the following policy and action related to wastewater that are applicable to the project (City of Berkeley 2002):

- **Policy EM-23 Sewers and Storm Sewers:** Protect and improve water quality by improving the citywide sewer system.
  - **Action E**: Ensure that new development pays its fair share of improvements to the storm sewerage system necessary to accommodate increased flows from the development.

ENVIRONMENTAL SETTING

Wastewater Collection

Wastewater from the project site would be discharged directly into the City of Berkeley sewer system. The City's collection system includes approximately 254 miles of sanitary sewer mains, 7,200 sewer holes and other sewer structures, 7 sewage pump stations, and approximately 31,600 service laterals (City of Berkeley 2019). An existing 27-inch sanitary sewer line is adjacent to the project site underneath Oxford Street.

Wastewater Treatment

Wastewater from the City's sewer collection system is conveyed to EBMUD's MWWTP, located in the City of Oakland. The MWWTP treats domestic, commercial, and industrial wastewater from an 83-square-mile service area that encompasses the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont, and Stege Sanitary District, which includes El Cerrito, Kensington and part of Richmond. The service population is approximately 740,000 (EBMUD 2022).

Wastewater from the service area is discharged to EBMUD's collection system through community sewer connections. EBMUD's collection system includes approximately 29 miles of interceptor sewer pipeline and 15 pump stations. The interceptors, ranging in size from 12 inches to 9 feet in diameter, parallel the San Francisco Bay-shore. The 15 pump stations, ranging in capacity from 1.5 to 60 MGD, lift wastewater throughout the collection system as it travels to the

MWWTP. The average daily flow at the MWWTP is 60 MGD (EBMUD 2022). The MWWTP has an average dry weather design flow capacity of 120 MGD and wet weather capacity of 320 MGD (San Francisco Bay RWQCB 2020).

Treatment processes include prechlorination, screening, grit removal, scum disposal, primary sedimentation, secondary treatment using high purity oxygen activated sludge, final clarification, sludge digestion, and power cogeneration utilizing digester gas (EBMUD 2022). The treated effluent is disinfected and dechlorinated before being discharged into the Central San Francisco Bay through a deepwater outfall. The NPDES permit for the MWWTP was issued by the San Francisco Bay RWQCB as Order No. R2-2020-0024 (NPDES Permit CA0037702), which became effective November 1, 2020, and expires on October 31, 2025 (San Francisco Bay RWQCB 2020).

EBMUD also operates wet weather treatment facilities that are used to store and manage flows during wet weather events (EBMUD 2022). During peak wet weather flow conditions, the WWTP can accept up to 425 MGD. Since the primary treatment design capacity is 320 MGD, wet weather flows in excess of the primary treatment capacity are stored onsite in an 11-million-gallon wet weather concrete storage basin and returned to the plant influent when flows subside (San Francisco Bay RWQCB 2020).

EBMUD has historically operated three wet weather facilities to provide primary treatment and disinfection for peak wet weather flows that exceed the treatment capacity of the MWWTP. However, EBMUD's NPDES permit now prohibits discharges from its wet weather facilities. Additionally, the satellite agencies that discharge to the EBMUD wastewater interceptor system, including the City of Berkeley, hold NPDES permits that prohibit them from causing or contributing to wet weather facility discharges. EBMUD and its satellite agencies are required to eliminate wet weather facility discharges by 2036. To meet this requirement, EBMUD has identified actions to reduce infiltration and inflow into its system, which include continuing to implement EBMUD's Regional Private Sewer Lateral Ordinance, constructing interceptor system improvements, and identifying key areas of inflow and rapid infiltration. Over the same period, the satellite agencies are required to reduce infiltration and inflow, such as through sewer main rehabilitation and elimination of inflow sources (Appendix A, "Notice of Preparation and Scoping Comments").

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

Impacts related to wastewater generation and associated infrastructure are identified by determining adequacy of existing infrastructure and comparing existing service capacity against future demand from project implementation.

Wastewater generation is estimated by calculating 90 percent of the projected indoor water demand under the project, which is based on the City of Berkeley's sewer discharge factor of 0.90 for educational services, as defined in BMC Section 17.04,010. The indoor water demand factor is 0.05 gallon/day/SF, which is lower than the water demand factor of 0.07 gallon/day/SF described above for the project because it does not include water uses that are not converted to wastewater (i.e., irrigation, cogeneration plant, and mechanical cooling).

Thresholds of Significance

The project would result in a significant impact related to wastewater services if it would:

- require or result in the relocation or construction of new or expanded wastewater treatment or facilities, the construction or relocation of which could cause significant environmental effects; or
- result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitment;

Impact Analysis

Impact 3.13-3: Implementing the project would not require or result in the relocation or construction of new or expanded wastewater infrastructure that would cause significant environmental effects.

An existing City of Berkeley 27-inch sanitary sewer line is adjacent to the project site underneath Oxford Street. As part of the project, two new 10-inch sanitary sewer lines would connect the new buildings to this existing City of Berkeley sanitary sewer line underneath Oxford Street. Sewage flows through the City's pipes would be conveyed to EBMUD's collection system, which would be delivered to the EBMUD MWWTP. The project's internal sewer system would be designed, constructed, and operated in accordance with the UC Berkeley Campus Design Standards and would be designed to appropriately connect to the City's existing sanitary sewer line in accordance with the City's private sewer lateral ordinance. Similar to the water infrastructure described above, tie-ins to the City's sanitary sewer system would occur within existing roadways in areas that have previously been disturbed. The types of impacts anticipated to result from project implementation, including the construction of tie-ins to existing sanitary sewer infrastructure in the project vicinity, are comprehensively analyzed in this EIR. Thus, the potential impacts resulting from tie-ins to the City's sanitary sewer system to serve the project are evaluated in this EIR's analysis.

The increased water demand associated with the project would result in an increase in the volume of wastewater conveyed through the existing sanitary sewer system and treated at the EBMUD MWWTP. As noted under the discussion of water infrastructure above, UC Berkeley would implement indoor water conservation measures in accordance with CBP USS-3, which would minimize wastewater generation and reduce the demand for new or expanded sanitary sewer infrastructure to the extent feasible.

As discussed further under Impact 3.15-3 below, EBMUD has indicated that its MWWTP and interceptor system would have adequate dry weather capacity to accommodate the wastewater flows generated by the project but identified existing capacity issues during wet weather flows (Appendix A, "Notice of Preparation and Scoping Comments"). As noted under the discussion of water infrastructure above, UC Berkeley has no authority or jurisdiction to provide upgrades to EBMUD's system to accommodate increases in sewer flows. However, UC Berkeley would implement CBPs USS-3 and USS-4 (listed under "Water Infrastructure" above) and CBP USS-5 as part of the project to ensure that EBMUD infrastructure has sufficient capacity to accommodate the project:

- **CBP USS-5**: Payments to service providers to help fund wastewater treatment or collection facilities will conform to Section 54999 of the California Government Code, including, but not limited to, the following provisions:
  - Fees will be limited to the cost of capital construction or expansion.
  - Fees will be imposed only after an agreement has been negotiated by UC Berkeley and the service provider.
  - The service provider must demonstrate the fee is nondiscriminatory: i.e. the fee must not exceed an amount determined on the basis of the same objective criteria and methodology applied to comparable nonpublic users, and must not exceed the proportionate share of the cost of the facilities of benefit to the entity property being charged, based upon the proportionate share of use of those facilities.

  The service provider must demonstrate the amount of the fee does not exceed the amount necessary to provide capital facilities for which the fee is charged.

In accordance with CBP USS-5, UC Berkeley would be required to pay capital facilities fees that would be used by EBMUD to continually upgrade components of its utility infrastructure systems through capital improvement programs. EBMUD would be responsible for evaluating the environmental effects of any new or expanded infrastructure within its service area at the time such improvements are proposed.

As required by law, utility connections would be constructed in accordance with all applicable building codes and standards to ensure an adequately sized and properly constructed transmission and conveyance system. Any necessary connections would be constructed prior to building occupancy and in a manner that would minimize the potential for utility service disruption of existing uses.

Based on the above discussion, the project impacts related to the construction of wastewater infrastructure needed to serve the project would be **less than significant.**

Impact 3.13-4: There would be adequate capacity to serve the project's projected wastewater treatment demand.

The project would result in the development of two laboratory buildings totaling approximately 486,000 gross square feet and is anticipated to generate a net increase of up to 1,074 new employment opportunities. Development and operation of these buildings would increase wastewater generation and flows. Assuming a water demand factor of 0.05 gallon/day/SF and a sewer discharge factor of 0.90 (see "Analysis Methodology" above), the project is expected to generate approximately 21,870 gallons of wastewater per day (0.02 MGD). As discussed under the "Analysis Methodology" section above, the baseline wastewater generation at the project site is estimated to be 4,489 gallons per day. Therefore, the project would result in an increase in wastewater generation of approximately 17,381 gallons per day compared to existing conditions.

EBMUD's MWWTP has an average daily flow of 60 MGD, average dry weather design flow capacity of 120 MGD, and wet weather capacity of 320 MGD (EBMUD 2022; San Francisco Bay RWQCB 2020). Therefore, the MWWTP has residual capacity of approximately 60 MGD during dry weather. The wastewater generated by the project would represent a 0.03 percent increase in the MWWTP's average daily wastewater flows and 0.01 percent of the MWWTP's average dry weather design flow capacity. EBMUD has indicated that its MWWTP and interceptor system would have adequate dry weather capacity to accommodate the wastewater flows generated by the project but identified existing capacity issues during wet weather flows (Appendix A, "Notice of Preparation and Scoping Comments").

The project would be designed to achieve or exceed the US Green Building Council's LEED Gold certification and comply with CALGreen requirements that pertain to water conservation, which would reduce wastewater generation. As part of the project, UC Berkeley would also implement CBP USS-3, USS-4, and USS-5 (each as listed under Impact 3.15-1 above) to reduce wastewater generation. As noted above, CBP USS-3 requires UC Berkeley to incorporate water conservation measures (e.g., special air-flow aerators, flush cycle reducers, and low-volume toilets) into project design to minimize indoor water consumption, which would minimize wastewater generation. CBP USS-4 requires UC Berkeley to evaluate the capacity of off-site municipal sewer systems during project planning, which would occur in coordination with the City of Berkeley and EBMUD. CBP USS-5 requires UC Berkeley to pay service providers to help fund wastewater treatment or collection facilities in conformance with Section 54999 of the California Government Code. Accordingly, UC Berkeley would pay the City a sewer connection fee and pay EBMUD wastewater treatment fees. The sewer connection and wastewater collection fees are used by the City and EBMUD to continually upgrade components of the wastewater collection and transmission systems through capital improvement programs.

Based on the discussion above, compliance with CALGreen Building Code and LEED certification requirements and implementation of UC Berkeley CBPs would reduce the volume of wastewater generated by the project. In addition, UC Berkeley would contribute fees that would fund upgrades to existing wastewater collection and transmission systems, which would ensure that project implementation would not contribute to wastewater volumes that would exceed the capacity of EBMUD's wastewater treatment system. Therefore, the project would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand, in addition to the provider's existing commitments. The impact on wastewater infrastructure capacity would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.15.3 Electricity, Natural Gas, and Telecommunications

REGULATORY SETTING

Federal

No federal plans, policies, regulations, or laws related to electricity, natural gas, and telecommunications are applicable to the project.

State

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned electric, natural gas, and telecommunications utilities and water, railroad, rail transit, and passenger transportation companies. CPUC policies regarding telecommunications are intended to ensure fair, affordable, and universal access. The Electric Safety and Reliability Branch of the CPUC enforces CPUC rules and regulations for power plants and utility companies, conducts audits, and investigates safety incidents or system problems regarding electric and communication systems. The CPUC also regulates natural gas services and energy efficiency programs, and investigates violations of the Public Utilities Code, CPUC regulations, and other relevant California statutes.

California Building Standards Code

The California Building Standards Code (24 CCR) provides minimum requirements for the construction and operation of buildings and building components to safeguard public health, safety, and general welfare. Part 3 of the code is the California Electrical Code, which adopts the National Electrical Code of the National Fire Protection Association with amendments specific to California. The purpose of the California Electrical Code is to establish minimum requirements for electrical infrastructure. It includes provisions pertaining to the construction, alteration, movement, enlargement, maintenance, removal, and demolition of all buildings or structures statewide. In addition, Part 6 of the California Building Standards Code is the California Energy Code, which provides energy conservation standards for new residential and nonresidential buildings and requires the design of buildings and building components to conserve energy.

Integrated Energy Policy Report

The California Energy Commission prepares an integrated policy report every two years that assesses major energy trends and issues facing the state’s electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state’s economy; and protect public health and safety. Energy efficiency is one of the key components of the state’s strategy to reduce greenhouse gas emissions (GHGs) and to achieve reduction targets set forth by AB 32, SB 32, and Governor Brown’s Executive Order B-30-15. Efficiency achieved through building codes, appliance standards, and ratepayer-funded programs has had a positive impact on GHG emissions in recent years. The most currently adopted 2021 Integrated Energy Policy Report indicates that buildings account for 24 percent of the state’s GHG emissions and that decarbonizing buildings is a fundamental part of meeting the state’s climate goals (CEC 2022). A 2023 report is currently in progress.

Energy Efficiency Strategic Plan

The CPUC’s 2008 Energy Efficiency Strategic Plan established goals of having all new residential construction in California be zero net energy (ZNE) by 2020 and all new commercial construction ZNE by 2030 (CPUC 2008). The Strategic Plan was subsequently updated in January 2011 to include a lighting chapter.

Clean Energy and Pollution Reduction Act

On October 7, 2015, the Clean Energy and Pollution Reduction Act (SB 350) was signed into law, establishing new clean energy, clean air, and GHG reduction goals for 2030 and beyond. SB 350 codifies Governor Brown’s clean energy goals to increase California’s renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030 and is part of California’s overall strategy to address climate change. SB 350 enhances the state’s ability to meet its long-term climate goal of reducing GHG emissions to 40 percent of 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (CEC 2023a).

California Code of Regulations, Energy Efficiency Standards

Energy consumption in new buildings in California is regulated by State Building Energy Efficiency Standards contained in Title 24 of the California Code of Regulations. The Building Energy Efficiency Standards are updated every three years. The Energy Code (Title 24, Part 6) contains energy and water efficiency requirements and indoor air quality requirements for newly constructed buildings, additions to existing buildings, and alterations to existing buildings. The most currently adopted Energy Code builds on California's technology innovations, encouraging energy efficient approaches to encourage building decarbonization, emphasizing in particular on heat pumps for space heating and water heating. The Energy Code also extends the benefits of photovoltaic and battery storage systems and other demand flexible technology to work in combination with heat pumps to enable California buildings to be responsive to climate change. This update provides crucial steps in the state's progress toward 100 percent clean carbon neutrality by midcentury (CEC 2023b). CALGreen is contained in Title 24, Part 11, and includes voluntary energy efficiency provisions.

<u>Green Building Initiative</u>

In 2012, Governor Brown's Executive Order B-18-12 and its related Green Building Action Plan state the following energy and water efficiency improvement goals for facilities owned, funded, and leased by the state:

- All new state buildings beginning design after 2025 shall be constructed as ZNE facilities with an interim target for 50 percent of new facilities beginning design after 2020 to be ZNE. State agencies shall also take measures toward achieving ZNE for 50 percent of the square footage of existing state-owned building area by 2025.
- The state shall identify at least three buildings by January 1, 2013, to pursue ZNE as pilot projects.
- New and major renovated state buildings shall be designed and constructed to exceed the applicable version of CCR Title 24, Part 6, by 15 percent or more, and include building commissioning, for buildings authorized to begin design after July 1, 2012.
- Any proposed new or major renovation of state buildings larger than 10,000 square feet shall use clean, on-site power generation such as solar photovoltaic, solar thermal, and wind power generation, and clean backup power supplies, if economically feasible.
- New and major renovated state buildings larger than 10,000 square feet shall obtain Leadership in Energy and Environmental Design (LEED) "Silver" certification or higher.
- State agencies shall reduce water use at the facilities they operate by 10 percent by 2015 and by 20 percent by 2020, as measured against a 2010 baseline.
- All new and renovated state buildings and landscapes shall utilize alternative sources of water wherever cost-effective. Sources may include, but are not limited to: recycled water, graywater, rainwater capture, stormwater retention, and other water conservation measures.
- Landscape plants shall be selected based on their suitability to local climate and site conditions, and reduced water needs and maintenance requirements.
- State agencies shall identify and pursue opportunities to provide electric vehicle charging stations, and accommodate future charging infrastructure demand, at employee parking facilities in new and existing buildings.

University of California

<u>UC Sustainable Practices Policy</u>

The Green Building Design section of the sustainability practices policy contains the following goals and practices that are relevant to the project:

- New Buildings
  - At a minimum, all new building projects, other than acute care facilities, will be designed, constructed, and commissioned to outperform the California Building Code (CBC) energy-efficiency standards by at least 20% [percent] or meet the whole-building energy performance compliance targets listed in Table 1 of Section V.A.1 [of the UC Sustainable Practices Policy]. Additionally, whenever possible within the constraints of program needs and standard budget parameters, the UC will strive to design, construct, and commission buildings that outperform CBC energy efficiency standards by at least 30% [percent] or meet the whole-building energy performance stretch targets listed in Table 1 of Section V.A.1 [of the UC Sustainable Practices Policy].

- New building or major renovation projects must not use onsite fossil fuel combustion (e.g., natural gas) for space and water heating (except those projects connected to an existing campus central thermal infrastructure). Projects unable to meet this requirement will document the rationale for this decision, as described in Section V.A.1.d [of the UC Sustainable Practices Policy].
- All new buildings will at a minimum achieve a USGBC LEED "Gold." Additionally, whenever possible within the constraints of program needs and standard budget parameters, all new buildings will strive to achieve certification at a USGBC LEED "Platinum" rating. This provision applies to all building projects submitting Preliminary Drawings after January 1, 2024 (per section V.A.1.a. [of the UC Sustainable Practices Policy]). Projects submitted prior to that date have the option to follow the old standard of achieving LEED Silver and striving for Gold.

The Sustainable Building and Laboratory Operations for Campuses section of the sustainability practices policy contains the following goals and practices that are relevant to the project:

- Each campus will seek to certify as many buildings as possible through the LEED-O+M rating system within budgetary constraints and eligibility limitations.
- All campuses will maintain an ongoing Green Lab Assessment Program supported by a department on campus to assess the operational sustainability of research groups and the laboratories and other research spaces.
    - At least one staff or faculty member from the campus must have the role of managing the Green Lab Assessment Program.
    - Any green lab assessment programs and related efforts will adhere to all relevant UC, state and national policies and laws. Safety will never be compromised to accommodate sustainability goals.
    - All campuses will maintain a UC Green Laboratories Action Plan.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley campus built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing campus buildings, infrastructure, grounds, and maintenance issues.

Directions for electrical and communications infrastructure are provided in Divisions 26 and 27, of the construction specifications, respectively. The Campus Design Standards include directions for utility sizing, installation, controls, materials, efficiency, and relevant standards to follow.

UC Berkeley also complies with the UC Facilities Manual, which includes policies, procedures, and guidelines for planning, design, construction contracting, and facilities management.

Local

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Local plans, policies, and regulations are not considered in the assessment of impacts on electricity, natural gas, and telecommunications in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of impacts on electricity, natural gas, and telecommunications. Therefore, local plans, policies, and regulations are not provided herein.

ENVIRONMENTAL SETTING

PG&E operates and maintains electrical infrastructure servicing the project site and surrounding area. Underground electrical infrastructure in the vicinity of the project includes electrical conduit and manholes located within Oxford Street and Addison Street.

Telecommunications providers in the City of Berkeley include AT&T, Comcast, and Sonic. Local telecommunications infrastructure includes fiber conduits and fiber vaults within Oxford Street and Addison Street and underneath the existing University Hall building.

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

The project would not require natural gas for operation. Impacts related to electricity and telecommunications are evaluated by determining whether any new facilities would need to be constructed to serve implementation of the project, whether service providers (PG&E, AT&T, Comcast, and Sonic) would be able to serve the project, and whether the construction of necessary improvements would adversely affect service provider capacity or infrastructure. The focus of this section is on the environmental effects of constructing new or connecting to existing infrastructure needed to serve the project, while Section 3.5, "Energy," focuses on the consumption of energy resources, consistent with Appendix G of the CEQA Guidelines.

Thresholds of Significance

The project would result in a significant impact related to energy infrastructure if it would:

- require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Issues Not Discussed Further

Natural Gas

Consistent with the UC Sustainable Practices Policy, the project would not provide a gas connection to nearby natural gas infrastructure and would instead rely solely on electricity for energy needs. As a result, the project would not require the construction of new or expanded natural gas infrastructure. Moreover, a cogeneration plant, which produced steam for building heat and hot water generation and electricity powered by natural gas, served University Hall when it was active, and the project would disconnect from the cogeneration plant, eliminating existing on-site natural gas utilities. Therefore, this issue is not discussed further.

Impact Analysis

Impact 3.13-5: Implementing the project would not require or result in the relocation or construction of new or expanded electricity and telecommunications infrastructure that would cause significant environmental effects.

Electrical Infrastructure

The project would connect to PG&E's existing electrical infrastructure currently servicing the surrounding area. The project would be all electric and would be supplied by 100 percent carbon free electricity. The project may include a solar photovoltaic (PV) system that provides electricity for on-site use. As with the water and wastewater infrastructure described above, the potential impacts resulting from tie-ins to PG&E's existing electrical infrastructure to serve the project and on-site PV system are evaluated in this EIR's analysis.

Project implementation would increase the demand for electricity. The project would comply with the University of California Sustainable Practices Policy. Consistent with the fossil-fuel-free provisions of this policy, the project would incorporate electrification and not natural gas for building heat and hot water generation. In addition, the project would be designed to achieve or exceed the US Green Building Council's LEED Gold certification. The project's energy demand would be served by PG&E's existing electrical distribution infrastructure and would not require improvements to increase capacity. See also Section 3.5, "Energy," for additional information regarding energy consumption and energy efficiency strategies associated with the project.

As required by law, utility connections would be constructed in accordance with all applicable building codes and standards to ensure an adequately sized and properly constructed transmission and conveyance system. Any necessary connections would be constructed prior to building occupancy and in a manner that would minimize the potential for utility service disruption of existing uses.

Based on the above discussion, the project impacts related to the construction of electrical infrastructure needed to serve the project would be **less than significant**

Telecommunications Infrastructure

Telecommunications and broadband services would be provided by connection to UC Berkeley's campuswide broadband system and existing utility providers in the area, such as AT&T, Comcast or Sonic. Each building would include appropriate on-site infrastructure to connect to the existing telecommunication systems. As with the water, wastewater, and electrical infrastructure described in the sections above, the potential impacts resulting from tie-ins to existing telecommunications infrastructure to serve the project are evaluated in this EIR's analysis. No other capacity upgrades are anticipated to be required as a result of the project. As required by law, utility connections would be constructed in accordance with all applicable building codes and standards to ensure an adequately sized and properly constructed transmission and conveyance system. Any necessary connections would be constructed prior to building occupancy and in a manner that would minimize the potential for utility service disruption of existing uses. Therefore, the project impacts related to the construction of telecommunications infrastructure needed to serve the project would be **less than significant**.

3.15.4 Solid Waste

REGULATORY SETTING

Federal

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (Title 40 of the Code of Federal Regulations), Part 258, contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the federal landfill criteria. The federal regulations address the location, operation, design, groundwater monitoring, and closure of landfills. See also Section 3.8, "Hazards and Hazardous Materials," for additional information.

State

California Integrated Waste Management Act of 1989 (AB 939 and SB 1322)

California's Integrated Waste Management Act of 1989 (AB 939 and SB 1322) set a requirement for cities and counties throughout California to divert 50 percent of all solid waste from landfills as of January 1, 2000, through source reduction, recycling, and composting. AB 939 also required cities and counties to prepare integrated waste management plans and a source reduction and recycling element to be submitted to CalRecycle.

CalRecycle oversees, manages, and tracks all the waste generated in California. It promotes the use of new technologies to divert resources away from landfills. CalRecycle also provides grants and loans to help California cities, counties, businesses, and organizations meet the state's waste reduction, reuse, and recycling goals. It also provides funds to clean up solid waste disposal sites and co-disposal sites, including facilities that accept hazardous waste substances and nonhazardous waste. In addition, CalRecycle develops, manages, and enforces waste disposal and recycling regulations.

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system based on a jurisdiction's reported total disposal of solid waste divided by the jurisdiction's population and expressed as pounds per day per resident and per employee. CalRecycle sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CalRecycle with an update of its progress in implementing diversion programs and its current per capita disposal rate.

While the UC is exempt from compliance with this act, UC Berkeley waste materials may be counted against the diversion percentages of the city of origin, in this case, the City of Berkeley. UC Berkeley remains committed to continuing and improving waste reduction and minimization efforts, which are detailed in this section under the heading, "University of California," below.

State Agency Buy Recycled Campaign

The State Agency Buy Recycled Campaign is a joint effort between CalRecycle and the Department of General Services to implement state laws requiring state agencies and the Legislature to purchase recycled-content products and track those purchases. It complements the intent of the Integrated Waste Management Act to reduce the amount of waste going to California's landfills. An annual report detailing state agencies' annual purchase of recycled-content products is due to CalRecycle by October 31 of each year.

California Global Warming Solutions Act of 2006 (AB 32)

AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020, a reduction of approximately 15 percent below emissions expected under a "business as usual" scenario. Pursuant to AB 32, the California Air Resources Board must adopt regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. The full implementation of AB 32 will help mitigate risks associated with climate change, improve energy efficiency, expand the use of renewable energy resources and cleaner transportation, and reduce waste.

Organic Waste Methane Emissions Reduction Act (Senate Bill 1383)

In September 2016, SB 1383 established methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants in various sectors of California's economy. SB 1383 established goals to reduce the landfill disposal of organics by achieving a 50 percent reduction in the 2014 level of statewide disposal of organic waste by 2020 and a 75 percent reduction by 2025. SB 1383 granted CalRecycle the regulatory authority to achieve the organic waste disposal reduction targets and establishes an additional target—that at least 20 percent of currently disposed edible food be recovered for human consumption by 2025. Methane emissions resulting from the decomposition of organic waste in landfills are a significant source of greenhouse gas emissions contributing to global climate change. Organic materials—including waste that can be readily recycled or composted—account for a significant portion of California's overall waste stream.

SB 1383 also requires that—no later than July 1, 2020—CalRecycle and the California Air Resources Board analyze the progress that the waste sector, state government, and local governments have made in achieving the targets for reducing organic waste in landfills. Depending on the outcome of the analysis, CalRecycle is authorized to amend the regulations to include incentives or additional requirements to meet the goals.

Mandatory Commercial Recycling Requirements (AB 341)

AB 341 (Chapter 476) sets a statewide solid waste diversion goal of 75 percent by 2020. Passed in 2011 and taking effect July 1, 2012, AB 341 mandated recycling for businesses producing four or more cubic yards of solid waste per week or multifamily residential dwellings of five or more units. Under AB 341, businesses (including public entities) and multifamily dwellings of five or more units must separate recyclables from trash and then either subscribe to recycling services, self-haul their recyclables, or contract with a permitted private recycler.

Mandatory Commercial Organics Recycling (AB 1826)

AB 1826, which was enacted in 2014, mandated organic waste recycling for businesses and multifamily dwellings with five or more units. The commercial organics recycling law took effect on April 1, 2016. Organic waste includes food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. As of September 2020, businesses and multifamily residences of five or more units that generate two or more cubic yards per week of solid waste (including recycling and organic waste) must arrange for organic waste recycling services. The bill requires each jurisdiction to report to CalRecycle on its progress in implementing the organic waste recycling program, and CalRecycle will review whether a jurisdiction is in compliance with the act.

Construction and Demolition Waste Materials Diversion Requirements (Senate Bill 1374)

SB 1374 requires that jurisdictions summarize their progress in diverting construction and demolition waste from the waste stream in their annual AB 939 reports. SB 1374 required CalRecycle to adopt a model construction and demolition ordinance for voluntary implementation by local jurisdictions.

CALGreen Building Code

As described under the "Domestic Water" section above, CALGreen establishes building standards for sustainable site development. Sections 4.408 and 5.408, Construction Waste Reduction, Disposal and Recycling, mandate that, in the absence of a more stringent local ordinance, a minimum of 65 percent of nonhazardous construction and demolition debris generated during most new construction must be recycled or salvaged. CALGreen requires developers to prepare and submit a waste management plan for on-site sorting of construction debris that:

- Identifies the materials to be diverted from disposal by recycling, reuse on the project, or salvage for future use or sale.
- Specifies if materials will be sorted on-site or mixed for transportation to a diversion facility.
- Identifies the diversion facility where the material collected can be taken.
- Identifies construction methods employed to reduce the amount of waste generated.
- Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

In addition, the CALGreen Building Code requires that 100 percent of trees, stumps, rocks, and associated vegetation and soil resulting from land clearing be reused or recycled.

University of California

UC Sustainable Practices Policy

The Zero Waste section of the sustainability practices policy includes the following goals and practices that are relevant to the project:

- The University will achieve zero waste through prioritizing waste reduction in the following order: reduce, reuse, and then recycle and compost (or other forms of organic recycling) as described in section V.F.6. Minimum compliance for zero waste, at all locations other than health locations, is as follows:
  a. Reduce per capita municipal solid waste generation by:
     i. 25% [percent] per capita from FY2015/16 levels by 2025
     ii. 50% [percent] per capita from FY2015/16 levels by 2030.
  b. Divert 90% [percent] of municipal solid waste from the landfill.
- The University prohibits the sale, procurement, or distribution of packaging foam, such as food containers and packaging material, other than that utilized for laboratory supply or medical packaging and products. The University seeks to reduce, reuse, and find alternatives for packaging foam used for laboratory and medical packaging products.
  a. No packaging foam or expanded polystyrene (EPS) will be used in foodservice facilities for takeaway containers.
  b. For implementation guidelines related to the procurement of goods for University of California campuses, reference the University of California Sustainable Procurement Guidelines.

UC Berkeley Zero Waste Plan

UC Berkeley's Zero Waste Plan is an update to the 2013 UC Berkeley Zero Municipal Solid Waste to Landfill by 2020 plan. The Zero Waste Plan summarizes key zero waste programs currently implemented at UC Berkeley and outlines how these programs will be implemented and expanded to reach its zero waste goal.

The programs in the plan form a multilayered strategy that focuses on a few key components:

- Installing standardized infrastructure, including signage and bins, in UC Berkeley facilities.
- Educating the UC Berkeley community about the proper sorting of materials into bins and waste reduction and reuse best practices.
- Reducing the amount and flow of materials.
- Reusing, repairing, and recirculating usable materials.
- Upgrading the procurement process with partners to minimize waste.
- Engaging UC Berkeley partners and affiliates to adopt zero waste.
- Standardizing and institutionalizing zero waste practices and behaviors.

Zero waste planning and efforts at UC Berkeley are guided by the most current version of the University of California's Sustainability Policy.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing buildings, infrastructure, grounds, and maintenance issues. UC Berkeley also complies with the UC Facilities Manual, which includes policies, procedures, and guidelines for planning, design, construction contracting, and facilities management.

UC Berkeley Continuing Best Practices

As described under the "Domestic Water" section above, UC Berkeley implements CBPs to ensure that environmental impacts from development and ongoing UC Berkeley operation would be reduced or avoided to the greatest extent feasible. CBPs are implemented by UC Berkeley as part of development efforts and ongoing operation. Relevant project-specific CBPs would be implemented as part of the project, as described in Chapter 2, "Project Description." Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operation, are listed where relevant in the impact analyses presented in this section, to illustrate how they would help to reduce or avoid environmental impacts from the project. A complete list of UC Berkeley CBPs is provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR.

Local

As discussed in Section 3.15.3, "Electricity, Natural Gas, and Telecommunications," above, UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. Local plans, policies, and regulations are not considered in the assessment of solid waste impacts in this EIR, as they are not used by UC Berkeley as thresholds or standards of significance and are not warranted to provide context for the assessment of solid waste impacts. Therefore, local plans, policies and regulations are not provided herein.

ENVIRONMENTAL SETTING

Solid Waste Collection

UC Berkeley provides solid waste collection and recycling services to the campus through Cal Zero Waste. Cal Zero Waste manages over 25 tons of solid waste that are generated throughout the campus daily and is committed to expanding recycling and composting programs while providing effective refuse collection services. Cal Zero Waste works in concert with other UC Berkeley entities such as Custodial Services for indoor waste and recycling collection and Grounds Operations for green waste and plant debris services. Cal Zero Waste operates trucks that collect UC Berkeley landfill waste, recyclables (paper and cardboard), and compost and manages most vendor contracts for off-site hauling services for landfill materials, green waste, concrete, metal roll-offs, bottle and can pick-ups, and metals. All waste materials are transported off campus to facilities for processing.

UC Berkeley has a dual-stream recycling system in which paper and cardboard are collected separately from cans and bottles. UC Berkeley also has a limited recycling program that is operated by UC Berkeley's Property Management Department and includes metals, construction and demolition waste, and wood recycling. Additionally, UC Berkeley collects both pre-consumer and post-consumer organic materials to be composted at a local commercial composting facility (UC Berkeley 2019).

Solid Waste Disposal

Table 3.15-3 summarizes the disposal destinations for the various material streams collected from UC Berkeley.

Table 3.15-3 Material Streams Disposal Destinations

Waste Stream	Destination	Location
Mixed Paper	Berkeley Recycling Center/Community Conservation Center	Berkeley, CA
Cans and Bottles	Tri-CED (via Civicorp)	Union City, CA
Cardboard	Berkeley Recycling Center/Community Conservation Center	Berkeley, CA
Compost	West Contra Costa Landfill City of Berkeley Transfer Station	Richmond, CA Berkeley, CA
Landfill	Keller Canyon Landfill (via Golden Bear Transfer Station in Richmond, CA) City of Berkeley Transfer Station	Pittsburg, CA Berkeley, CA

Source: UC Berkeley 2019.

The Keller Canyon Landfill is located at 901 Bailey Road in unincorporated Contra Costa County near the City of Pittsburg, California, and is under the jurisdiction of Contra Costa County. The Contra Costa County Health Services Department, Environmental Health Division is the local enforcement agency responsible for the landfill's solid waste facility permit and its daily operation. Waste types accepted at the landfill include industrial, sludge (biosolids) agricultural, construction/demolition, and mixed municipal wastes. The Keller Canyon Landfill has a permitted throughput of 3,500 tons per day (CalRecycle 2023). In 2022, 803,289 tons of solid waste were disposed at the landfill, resulting in an average daily throughput of 3,213 tons per day (based on 250 working business days) (CalRecycle 2022). As of November 16, 2004, the remaining capacity at the landfill was 63,408,410 cubic yards, out of a total maximum permitted capacity of 75,018,280 cubic yards. The landfill is projected to continue operation until 2050 (CalRecycle 2023).

Solid Waste Generation

As of June 30, 2018, UC Berkeley's diversion of municipal solid waste from landfills was 52 percent. The amount of materials sent to the landfill has steadily decreased from 6,049 tons of solid waste in 2004 to 3,784 tons in 2018, a decrease of approximately 37 percent (UC Berkeley 2019).

UC Berkeley implements a Zero Waste Buildings Program to systematically transition its buildings and facilities to a zero-waste infrastructure system where centralized recycling, composting, and landfill bins are available and standardized at major throughways and entrance/exits throughout each building. In addition, this program also focuses on promoting reduction, reuse, and refill practices in each building. This program also includes an educational component where departments are invited to a training led by Cal Zero Waste and building occupants can learn about how to effectively utilize the new zero waste system and become ambassadors for zero waste in their department or building.

IMPACT ANALYSIS AND MITIGATION MEASURES

Methodology

This analysis evaluates the capacity of existing solid waste infrastructure to accommodate the change in solid waste generation from project implementation compared to baseline conditions.

Baseline solid waste generation is estimated using default assumptions from the California Emissions Estimator Model based on the square footage and land uses associated with the existing uses on the project site (refer to Appendix C, "Air Quality and Greenhouse Gas Emissions Data," for modeling assumptions). Because University Hall is currently unoccupied, existing solid waste generation for this building is assumed to be 0 tons per year. The annual baseline solid waste generation for the existing commercial buildings (2154-2160 University Avenue and 2136-2140 University Avenue) at the project site is estimated to be 64.1 tons per year.

Solid waste generated by the project is estimated based on the following per capita disposal rate for UC Berkeley: 0.07 ton per capita per year. This generation rate is based on data from 2018, in which UC Berkeley sent 3,784 tons of solid waste to the landfill and the campus population was estimated to include 55,129 students, faculty, and staff (UC Berkeley 2021). For the purposes of this EIR, it is conservatively assumed that the solid waste generation rate from the project would be the same as the campus solid waste generation rate from 2018; however, the actual amount of solid waste generated by the project may be much lower in the future with implementation of UC Berkeley's zero waste goal and comprehensive waste diversion programs.

Thresholds of Significance

The project would result in a significant impact related to solid waste services if it would:

- generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure or otherwise impair attainment of solid waste reduction goals; or
- fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Impact Analysis

Impact 3.13-6: Implementing the project would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals or requirements.

As described above, solid waste is transported from the project site to various disposal destinations, including the Keller Canyon Landfill, which would be the primary waste disposal site serving the project during construction and operation. During the construction period, approximately 48,006 cubic yards of soil and 16,360 cubic yards of construction debris would be hauled off-site. In accordance with Section 5.408 of the CALGreen Code, the project would implement a Construction Waste Management Plan that would require recycling and/or salvaging a minimum of 65 percent of nonhazardous construction and demolition debris. As discussed in "Environmental Setting" section above, the Keller Canyon Landfill had a remaining capacity of 63,408,410 cubic yards in November 2004 and is projected to continue operation through approximately 2050 with a maximum permitted throughput of 3,500 tons per day (CalRecycle 2022, CalRecycle 2023). Assuming the landfill is receiving the maximum permitted throughput of 3,500 tons per day (1,277,500 tons per year) since the last capacity inspection in November 2004, the landfill would have received approximately 25,5550,000 tons (approximately 18,242,700 cubic yards) of solid waste by November 2024. Therefore, the estimated remaining capacity of the landfill would be 45,165,710 cubic yards by November 2024. Therefore, the landfill would have sufficient capacity to accommodate the solid waste generated from project-related construction activities.

Once operational, the project is anticipated to include a net increase of up to 1,074 new employment opportunities. Assuming UC Berkeley's per capita disposal rate remains the same as that of 2018 (see "Analysis Methodology," above), the project is anticipated to generate approximately 75.2 tons per year of waste (average of 0.21 ton per day).

As discussed under the "Analysis Methodology" section above, the baseline solid waste disposal from the project site is approximately 64.1 tons per year. Therefore, the project would result in an increase in solid waste disposal of approximately 11.1 tons per year (average of 0.03 ton per day) compared to existing conditions. This increase in solid waste generation would represent a negligible increase in the daily throughput and a negligible reduction in the daily excess capacity of the Keller Canyon Landfill. The landfill has sufficient capacity to accommodate the disposal of solid waste generated from the project. Moreover, it is anticipated that UC Berkeley's contribution to landfill volumes, including project contributions, would substantially decrease over time as the campus implements measures to achieve zero waste.

As part of the project, UC Berkeley would implement CBP USS-6 and CBP USS-7 to promote waste reduction and ensure adherence to applicable solid waste requirements:

- **CBP USS-6**: UC Berkeley will continue to implement the Zero Waste requirements of the UC Sustainability Policy designed to reduce the total quantity of campus solid waste that is disposed of in landfills.
- **CBP USS-7**: In accordance with the CalGreen Code, and as required for Leadership in Energy and Environmental Design certification, contractors working for UC Berkeley will be required under their contracts to report their solid waste diversion according to UC Berkeley's waste management reporting requirements.

California's Integrated Waste Management Act requires all state agencies and large state facilities to divert at least 50 percent of their solid waste from disposal facilities. Under UC's Sustainable Practices Policy, UC Berkeley is working to reduce waste generation by 25 percent per capita from baseline levels by 2025 and reduce waste generation by 50 percent per capita from baseline levels by 2030. UC Berkeley has also developed a Zero Waste Plan that summarizes key zero waste programs currently implemented at UC Berkeley and outlines how these programs will be implemented and expanded to reach its zero-waste goal. As of June 30, 2018, UC Berkeley's diversion of municipal solid waste from landfills was 52 percent.

Implementation of state requirements, University of California sustainability policies, and UC Berkeley's Zero Waste Plan and CBPs would continue to reduce landfill contributions in a manner that would meet or exceed the requirements of applicable solid waste reduction goals and requirements, including California's Integrated Waste Management Act, AB 341, AB 1826, and SB 1374. Therefore, project implementation would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure and would not impair the attainment of solid waste reduction goals or requirements. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.16 WILDFIRE

This section evaluates the effects of the project's implementation on wildfire and wildfire-related risks. The following analysis considers drivers of wildfire risk, and how the project could add to such risks or expose people or structures to wildfire risk. This section also provides background and context on wildfire concepts, such as wildfire regime, wildfire behavior, and wildfire management practices.

No comments related to wildfire were received in response to the notice of preparation (NOP). Refer to Appendix A for the NOP and comments received on the NOP.

3.16.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to wildfire are applicable to the project.

STATE

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of more than 31 million acres of the state's privately owned wildlands. Public Resource Code (PRC) Sections 4125–4137 establish that CAL FIRE has the primary financial responsibility of preventing and suppressing fires in the State Responsibility Area (SRA). PRC Section 4290 states that CAL FIRE also has responsibility for enforcement of Fire Safe Standards, including road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts. PRC Section 4291 gives CAL FIRE the authority to enforce 100 feet of defensible space around all buildings and structures on nonfederal SRA lands, or nonfederal forest-covered lands, brush-covered lands, grass-covered lands, or any land covered with flammable material.

Board of Forestry and Fire Protection

The Board of Forestry and Fire Protection (Board) is a governor-appointed body within CAL FIRE. It is responsible for developing the general forest policy of the state, determining the guidance policies of CAL FIRE, and representing the state's interest in federal forestland in California. Together, the Board and CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the state's unique forest and wildland resources.

The Board is charged with developing policy to protect all wildland forest resources in California that are not under federal jurisdiction. These resources include major commercial and noncommercial stands of timber, areas reserved for parks and recreation, woodlands, brush-range watersheds, and all private and state lands that contribute to California's forest resource wealth. In addition, the Board is responsible for identifying Very High Fire Hazard Severity Zones (FHSZs) in the SRA and Local Responsibility Area (LRA). Local agencies are required to designate, by ordinance, Very High FHSZs and to require landowners to reduce fire hazards adjacent to occupied buildings within these zones (Government Code Sections 51179 and 51182). The intent of identifying areas with very high fire hazards is to allow CAL FIRE and local agencies to develop and implement measures that would reduce the loss of life and property from uncontrolled wildfires (Government Code Section 51176). The current fire hazards maps were adopted in 2007. In late 2022, CAL FIRE released updated fire hazards maps, which are still under regulatory review and not yet adopted.

2018 Strategic Fire Plan for California

The 2018 Strategic Fire Plan for California lays out central goals for reducing and preventing the impacts of fire in the state (Board and CAL FIRE 2018). The goals are meant to establish, through local, state, federal, and private partnerships, a natural environment that is more resilient and human-made assets that are more resistant to the occurrence and effects of wildland fire. The goals of the 2018 Strategic Fire Plan for California include the following:

- improve the availability and use of consistent, shared information on hazard and risk assessment;
- promote the role of local planning processes, including general plans, new development, and existing developments, and recognize individual landowner/homeowner responsibilities;
- foster a shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans;
- increase awareness and actions to improve fire resistance of man-made assets at risk and fire resilience of wildland environments through natural resource management;
- integrate implementation of fire and vegetative fuels management practices consistent with the priorities of landowners or managers;
- determine and seek the needed level of resources for fire prevention, natural resource management, fire suppression, and related services; and
- implement needed assessments and actions for post-fire protection and recovery.

2018 State of California State Hazard Mitigation Plan

The California State Hazard Mitigation Plan represents the state's primary hazard mitigation guidance document. It includes discussions on wildfire and structural fire hazards and provides a mitigation plan for an effective wildfire suppression plan. The plan also includes goals and objectives related to reducing risks associated with wildfire (CalOES 2018).

California Building Code

The California Building Code (CBC), contained in Part 2 of Title 24 of the California Code of Regulations, identifies building design standards, including those for fire safety. Typical fire safety requirements of the CBC include the installation of fire sprinklers in all new high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas. Chapter 7A of the CBC, Materials and Methods for Exterior Wildfire Exposure, prescribes building materials and construction methods for new buildings in a fire hazard severity zone (FHSZ). Chapter 7A contains requirements for roofing; attic ventilation; exterior walls; exterior windows and glazing; exterior doors; decking; protection of underfloor, appendages, and floor projections; and ancillary structures.

California Fire Code

The California Fire Code (CFC) incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. The CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Typical fire safety requirements include installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas. Chapter 49 of the CFC, Requirements for Wildland-Urban Interface (WUI) Fire Areas, prescribes construction materials and methods in FHSZs. These requirements generally parallel CBC Chapter 7A.

California Public Resources Code

The following sections of the PRC are relevant to the project:

- PRC Section 4291 et seq. require that brush, flammable vegetation, or combustible growth be removed within 100 feet of buildings on or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land covered in flammable materials.
- PRC Section 4290 requires the State Board of Forestry and Fire Protection to adopt regulations implementing minimum fire safety standards for defensible space that would be applicable to lands within the SRA and lands within Very High FHSZs.
- PRC Section 4442 regulates the use of internal combustion engines that use hydrocarbon fuels on forest-covered land, brush-covered land, and grass-covered land. Internal combustion engines, like those used in construction, must be equipped with a spark arrester, which is a device used for removing and retaining carbon and other flammable particles from the exhaust flow for engines that use hydrocarbon fuels. These engines must be maintained in effective working order or be constructed, equipped, and maintained for the prevention of fire.

UNIVERSITY OF CALIFORNIA

Emergency Operations Management

The UC Berkeley Office of Emergency Management (OEM) works collaboratively to plan and prepare UC Berkeley for emergencies, educate about preparedness, and coordinate response and recovery. OEM administers a comprehensive emergency management and continuity program for UC Berkeley to respond to, recover from, and reduce the effects of risks associated with emergencies of all types and sizes. OEM is a unit of the UC Berkeley Administrative Division and implements UC Berkeley's Emergency Operations Plan.

OEM includes the UC Berkeley emergency operations center (EOC). UC Berkeley's EOC is responsible for the coordination of information and resources to manage and support an emergency. The UC Berkeley EOC is activated for a variety of emergencies that may affect UC Berkeley, such as an earthquake, wildfire, or large-scale power outage. OEM focuses on building partnerships across UC Berkeley. Depending on the emergency type and size, OEM collaborates with UC Berkeley departments and local authorities. Some of OEM's internal partners include University Health Services; Disability Access & Compliance; Facilities Services; Environment, Health & Safety; Fire Prevention (Campus Fire Marshal); Communications & Public Affairs; and Student Affairs.

Emergency Operations Plan

Each UC campus has a specific emergency operations plan (EOP). These plans include in-depth information regarding how each UC campus responds to any emergency situation, including fire hazards. The UC OEM works with campus units and leadership to respond to and recover from emergency situations. The UC Berkeley 2022 EOP describes the organizational framework, guidance, and authority for responding to and recovering from an emergency. The plan provides for the coordination of campus services and the use of available resources to minimize the effects of an emergency on life, property, and the environment (UC Berkeley 2022).

The UC is required under state law to use the Standardized Emergency Management System (SEMS), an emergency management organizational structure used by all emergency response agencies statewide, to coordinate incidents between agencies and jurisdictions. The SEMS also incorporates all the requirements of the National Incident Management System (NIMS).

SEMS and NIMS require the use of standard protocols and the use of common terminology and a command structure, known as the Incident Command System (ICS). The required components of SEMS and NIMS are reflected within the 2022 EOP. During an emergency response, the organizational structure of ICS will not resemble the day-to-day organization of the campus (UC Berkeley 2022).

UC Berkeley 2021 Long Range Development Plan

The UC Berkeley 2021 Long Range Development Plan contains the following objective related to wildfire that is applicable to the project (UC Berkeley 2021):

- **Infrastructure, Resilience, and Emergency Systems Objectives:**
  - Plan new projects in the City Environs to support UC Berkeley and City of Berkeley infrastructure initiatives related to sustainability and resilience, to the extent feasible.

UC Berkeley Campus Design Standards

UC Berkeley created the Campus Design Standards to guide design and construction professionals to complete lasting, high-quality additions to the UC Berkeley built environment. The Campus Design Standards, along with applicable codes, ensure that new construction and renovation projects at UC Berkeley integrate industry best practices and experience with existing UC Berkeley buildings, infrastructure, grounds, and maintenance issues. The following sections of the design standards are relevant to the project:

- Section 21 of the Campus Design Standards provides directions for the design, installation, and maintenance of fire suppression systems to ensure that systems are built to code and UC Berkeley standards for enhancing life safety and reducing fire risk.
- Section 28 of the Campus Design Standards includes directions for the design, installation, and maintenance of fire alarm systems for all UC Berkeley buildings.

UC Berkeley Continuing Best Practices

UC Berkeley applies continuing best practices (CBPs) relevant to wildfire as part of the project approval process. CBPs that are implemented as part of the project are identified in Chapter 2, "Project Description," and provided in Appendix B, "UC Berkeley Continuing Best Practices," of this Draft EIR. Applicable CBPs, which include both those implemented as part of the project and those implemented as part of ongoing operations, are identified and assessed for their potential to reduce adverse physical impacts later in this section under Section 3.16.3, "Impact Analysis and Mitigation Measures."

LOCAL

As discussed in Chapter 1, "Introduction," UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. UC Berkeley will not consider local plans, policies, and regulations in its evaluation of the environmental effects of the project unless UC Berkeley expressly decides to use a local plan, policy, or regulation as a threshold or standard of significance or if UC Berkeley determines that local plans, policies, or regulations provide important context for the assessment of environmental impacts. Because the Berkeley Fire Department (BFD) provides fire protection and emergency medical services to all UC Berkeley properties located in the City of Berkeley, the following local plans and regulations, which influence regional conditions related to wildfire and related emergency response, are provided for informational purposes.

Berkeley Fire Department

The BFD provides fire protection and emergency medical services in the City of Berkeley and to UC Berkeley properties. The BFD divides Berkeley into seven fire response districts, each of which has one fire station; the project is located in Fire Response District 2 and the closest fire station is #2, located just north of the project site at 2029 Berkeley Way. BFD provides 24-hour response for emergencies, including fire suppression, medical emergencies, hazardous materials events, and other life-threatening situations. When calls are received, a fire company and an ambulance are dispatched from the closest fire station with firefighters that are trained paramedics and emergency medical technicians. For hazardous materials events, the BFD has a specially trained hazardous materials response team. The BFD also supports these efforts with fire prevention, disaster preparedness, and public education programs, as well as training for all BFD staff.

City of Berkeley General Plan

The Disaster Preparedness and Safety Element of the City of Berkeley General Plan contains the following policies and actions related to wildfire that are applicable to the project (City of Berkeley 2002):

- **Policy S-1: Response Planning:** Ensure that the City's emergency response plans are current and incorporate the latest information on hazards, vulnerability, and resources.
  - **Action A:** Test, maintain, and revise the City's disaster response plan(s) consistent with the California Standardized Emergency Management System (SEMS) and establish clear coordination of roles and expectations with the County Office of Emergency Services, the University of California, the Berkeley Unified School District, neighboring jurisdictions, and other agencies.
  - **Action B:** Designate and publicize evacuation routes, shelter locations, and emergency service locations (hospitals, fire stations, etc.) within the city and sub region. Include existing city pathways and other pedestrian rights-of-way in the published designated evacuation route map. Prioritize undergrounding of utilities for designated routes to make them more reliable.
  - **Action D:** City departments shall conduct an appropriate level of staff training addressing emergency readiness, evacuation routes, first aid, staging areas and procedures, continuity of services, and response and recovery operations and including CERT [Community Emergency Response Team] training for all City employees.
  - **Action F:** Prepare an annual report in consultation with the Fire Safety Commission and other relevant Commissions and Boards on the state of preparedness in Berkeley.
  - **Action G:** Conduct coordinated planning and training between local and regional police, fire, and public health agencies in preparation for natural and man-made disasters, and ensure that the City's disaster response communication technologies are compatible with regional agency communication technologies.
- **Policy S-15: Construction Standards:** Maintain construction standards that minimize risks to human lives and property from environmental and human-caused hazards for both new and existing buildings.
  - **Action A:** Periodically update and adopt the California Building Standards Code with local amendments to incorporate the latest knowledge and design standards to protect people and property against known fire, flood, landslide, and seismic risks in both structural and non-structural building and site components.
- **Policy S-21: Fire Preventive Design Standards:** Develop and enforce construction and design standards that ensure new structures incorporate appropriate fire prevention features and meet current fire safety standards.
  - **Action A:** Strengthen performance review and code enforcement programs.
  - **Action B:** Promote the installation of built-in fire extinguishing systems and early warning fire alarm systems.
  - **Action C:** Maintain City standards for minimum width and vertical clearance and ensure that new driveways and roadways meet minimum standards of the Uniform Fire Code or subsequent standards adopted by the City.
  - **Action D:** Provide adequate water for fire suppression for new development in accordance with City standards for minimum volume and duration of flow.
  - **Action E:** Establish criteria for the installation of gas shutoff valves in new and existing construction, to reduce the risk of post-earthquake fires.
- **Policy S-22: Fire Fighting Infrastructure**: Reduce fire hazard risks in existing developed areas.
  - **Action A:** Develop proposals to make developed areas more accessible to emergency vehicles and reliable for evacuation. Consider restricting on-street parking, increasing parking fines in hazardous areas, and/or undergrounding overhead utilities. Require that all private access roads be maintained by a responsible party to ensure safe and expedient passage by the Fire Department at any time and require approval of all locking devices by the Fire Department. Ensure that all public pathways are maintained to provide safe and accessible pedestrian evacuation routes from the hill areas.

- **Action B:** Evaluate existing access to water supplies for fire suppression. Identify, prioritize, and implement capital improvements and acquire equipment to improve the supply and reliability of water for fire suppression. Continue to improve the water supply for firefighting to assure peak load water supply capabilities. Continue to work with East Bay Municipal Utility District (EBMUD) to coordinate water supply improvements. Develop aboveground (transportable) water delivery systems.
- **Action C:** Provide properly staffed and equipped fire stations and engine companies. Monitor response time from initial call to arrival and pursue a response time goal of four minutes from the nearest station to all parts of the city. Construct a new hill area fire station that has wildland firefighting equipment and ability.

- **Policy S-23: Property Maintenance** Reduce fire hazard risks in existing developed areas by ensuring that private property is maintained to minimize vulnerability to fire hazards.
  - **Action A:** Continue and expand existing vegetation management programs.
  - **Action B:** Property owners shall be responsible for maintaining their structures at a reasonable degree of fire and life safety to standards identified in adopted codes and ordinances.
  - **Action C:** Promote smoke detector installation in existing structures. Require the installation of smoke detectors as a condition of granting a permit for any work on existing residential and commercial buildings and as a condition for the transfer of property.
  - **Action D:** Promote fire extinguisher installation in existing structures, particularly in kitchens, garages, and workshops.
  - **Action E:** Require bracing of water heaters and gas appliances and the anchoring of houses to foundations to reduce fire ignitions following earthquakes.
- **Policy S-24: Mutual Aid:** Continue to fulfill legal obligations and support mutual aid efforts to coordinate fire suppression within Alameda and Contra Costa Counties, Oakland, the East Bay Regional Park District, and the State of California to prevent and suppress major wildland and urban fire destruction.
  - **Action A:** Work with inter-agency partners and residents in vulnerable areas to investigate and implement actions to improve fire safety, using organized outreach activities and councils such as the Hills Emergency Forum and the Diablo Fire Safe Council.
- **Policy S-25: Fire Safety Education:** Use Fire Department personnel to plan and conduct effective fire safety and prevention programs.

City of Berkeley Local Hazard Mitigation Plan

The 2019 City of Berkeley Local Hazard Mitigation Plan (LHMP) evaluates risks that different hazards pose to Berkeley and associated mitigation measures. The Berkeley LHMP documents the current understanding of hazards and the City's vulnerabilities to them; presents a mitigation strategy for a period of 5 years; and fulfills requirements of the federal Disaster Mitigation Act of 2000, which requires all communities to prepare mitigation plans. The Berkeley LHMP highlights that the City is vulnerable to wildfires, particularly in the WUI, and lists this as one of the City's hazards of greatest concern. Notable mitigation strategies discussed in the Berkeley LHMP include prevention through development regulations, natural resource protection through vegetation management, improvement of access and egress routes, and infrastructure maintenance and improvements to support first responders' efforts in reducing fire spread. The LHMP is an appendix to the Disaster Preparedness and Safety Element of the City of Berkeley General Plan (City of Berkeley 2019).

City of Berkeley Municipal Code

Chapter 19.28 of the City of Berkeley Municipal Code is the local building code, which adopts with amendments the CBC. Section 19.28.030 adopts, with modifications, CBC Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure. This section defines three fire zones for the City of Berkeley, in order of fire risk, with Fire Zone 3 being most at risk:

- Fire Zone 1 encompasses the entire City except for those areas located in Fire Zones 2 and 3.
- Fire Zone 2 encompasses areas zoned as Combined Hillside Districts and areas designated as Very High FHSZs by CAL FIRE (including the eastern section of the UC Berkeley Campus Park to the east City line, all the Clark Kerr Campus to the east City line, and all of block number 7680 and portions of block number 1702 in the Alameda County Assessor's parcel number system).
- Fire Zone 3 encompasses areas zoned as Environmental Safety – Residential Districts, which includes the Panoramic Hill neighborhood in southeast Berkeley.

Fire Zone 1 is located on flatlands and has some fire risk from wind-driven fires, but it is the area with the lowest wildfire risk. Fire Zones 2 and 3 are in the hills and are at highest wildfire risk. Fire Zone 3 is located in small areas of especially high risk around the Fire Trails. Chapter 19.48 of the Berkeley Municipal Code is the Berkeley Fire Code, which adopts the CFC with amendments. Section 19.48.020 defines the WUI fire area as "a geographical area identified by the State of California as a Fire Hazard Severity Zone in accordance with PRC Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires." This section identifies the City's WUI as Berkeley Fire Zones 2 and 3. The project site is located in Fire Zone 1 and therefore is not located within the WUI, as identified by the City of Berkeley.

Alameda County Community Wildfire Protection Plan

The Alameda County Community Wildfire Protection Plan (CWPP) was most recently updated in 2015 by the Diablo Fire Safe Council in conjunction with the Alameda County Fire Chiefs Association, Hills Emergency Forum, Oakland Wildfire Prevention Assessment District, and stakeholder committee members. It provides an analysis of the WUI areas of Alameda County. The Alameda County CWPP describes the local fire environment; identifies values at risk from wildfires; identifies high fire hazard areas; describes measures the community can take to reduce ignitability of structures and prioritize fuel management projects; identifies fuel reduction best management practices; and identifies federal, state, and local resources. The City of Berkeley is described as one of the most heavily urbanized areas in the county.

The Alameda County CWPP lists recommendations for reducing wildfire risk, including increasing awareness of hazard conditions; restricting certain equipment or work during high-fire-danger weather; maintaining and enforcing defensible space around buildings and reducing fuel sources adjacent to buildings; planting fire-resistant plants and using fire-resistant building materials; managing vegetation responsibly; and creating collaborative partnerships between local communities, natural resource groups, and fire response groups (Alameda County 2015).

Alameda County Emergency Operations Plan

The Alameda County Emergency Operations Plan (Alameda County EOP), prepared by the Alameda County Sheriff's Office of Homeland Security and Emergency Services, provides an overview of the jurisdiction's approach to emergency operations for the county, including those pertaining to wildfires. It includes a description and history of the wildfire threat to the county, among other hazards, and provides an overview of emergency response policies, response and recovery organization, and roles and responsibilities assigned to governmental agencies and community partners. The Alameda County EOP is intended to be used for all types of emergencies to facilitate response and recovery activities (Alameda County 2012).

3.16.2 Environmental Setting

WILDFIRE BEHAVIOR AND CONTROLLING FACTORS

Wildfire behavior is a product of several variables, primarily weather, vegetation, topography, and human influences, which intermix to produce local and regional fire regimes that affect how, when, and where fires burn. The fire regime in any area is defined by several factors, including fire frequency, intensity, severity, and area burned. Each of these factors is important for an understanding of how the variables that affect fire behavior produce fire risks. "Fire frequency" refers to the number of fires that occur in a given area over a given period. "Fire intensity" refers to the speed at which fire travels and the heat that it produces. "Fire severity" relates to the extent to which ecosystems and existing conditions are affected or changed by a fire. "Area burned" is the size of the area burned by wildfire.

Human Influence on Wildfire

The human influence on wildfire is broad and can be substantial. It includes direct influences, such as the ignition and suppression of fires, and indirect influence through climate change and alterations in land use patterns that support modified vegetative regimes and increased development in the WUI. (Refer to "Climate Change and Wildfire," below, for more discussion on the indirect effect of climate change on wildfire.)

Anthropogenic influence more directly controls fire frequency (i.e., number of ignitions) than size of a burn because humans are responsible for most of the ignitions. Once started, fires spread, and behavior become a function of fuel characteristics, terrain, and weather conditions (Syphard et al. 2008). Human-induced wildfire ignitions can change fire regime characteristics in two ways: (1) changing the distribution and density of ignitions and (2) changing the seasonality of burning activity (Balch et al. 2017).

Human ignitions include a multitude of sources, including escapes from debris and brush-clearing fires, electrical equipment malfunctions, campfire escapes, smoking, fire play (e.g., fireworks), vehicles, and arson. Consequently, areas near human development, especially in the WUI or in areas near campgrounds and roads, experience fires at a more frequent rate than remote or urban areas (Syphard et al. 2007; Mann et al. 2016; Balch et al. 2017).

Climate Change and Wildfire

Wildfires are a significant threat in California, particularly in recent years as the landscape responds to climate change and decades of fire suppression. As climate change persists, it will produce increasing temperatures and drier conditions that will generate abundant dry fuels. All wildfires (those initiated by both natural and human-made sources) tend to be larger under drier atmospheric conditions and when fed by drier fuel sources (Balch et al. 2017).

Additionally, climate change has led to exacerbation of wildfire conditions during a longer period of the year as the spring season has warmed—driving an earlier spring snowmelt—and as winter precipitation has overall decreased (Westerling et al. 2006). Further, wildfire activity is closely related to temperature and drought conditions, and in recent decades, increasing drought frequency and warming temperatures have led to an increase in wildfire activity (Westerling et al. 2006; Schoennagel et al. 2017). In particular, the western United States, including California, has seen increases in wildfire activity in terms of area burned, number of large fires, and fire season length (Westerling et al. 2006; Abatzoglou and Williams 2016). These conditions have resulted in the largest, most destructive, and deadliest wildfires on record in California history, several of which occurred in 2018.

Climate change will continue to produce conditions that facilitate a longer fire season, which, when coupled with human-caused changes in the seasonality of ignition sources, will produce more, longer, and bigger fires during more times of the year. According to California's Fourth Climate Change Assessment, Statewide Summary Report (OPR, CEC, and CNRA 2018), if greenhouse gas emissions continue to rise, the frequency of extreme wildfires burning more than 25,000 acres could increase by 50 percent by 2100, and the average area burned statewide could increase by 77 percent by the end of the century (Bedsworth et al. 2018). Refer to Section 3.7, "Greenhouse Gas Emissions," for additional discussion of climate change trends and the effects of climate change on the environment.

WILDFIRE CONDITIONS IN THE VICINITY OF THE UC BERKELEY CAMPUS

Wildfire Conditions

The East Bay Hills surrounding the UC Berkeley campus have been transformed from a native California grassland dominated by perennial bunchgrasses to one dominated by European annual grasses and forbs. The annual plants contribute to the current fuel load because the aboveground biomass dries out and persists into the dry season. In the absence of regular, small burns, shrub species and oak and bay seedlings proliferated, and the landscape was transformed into a mosaic of grassland patches within a shrub-tree matrix (FEMA 2014).

The complex mosaic of native and introduced vegetation presents a severe fire hazard for residents and structures in the WUI. The most dramatic change in the fire regime is the result of the introduction of nonnative blue gum eucalyptus to the East Bay Hills. Historically, fire has played an integral part in North American ecosystems, helping to shape vegetation structure and biological diversity. In the last 100 years, the act of fire suppression has reduced, and in many cases, removed the influence of fire on the landscape. Because of the elimination of fire and the coincidental increase in nonnative species, vegetative fuels have accumulated to higher levels than would have existed with more frequent fires. In the East Bay Hills, nonnative trees, such as blue gum eucalyptus and Monterey pine, also produce greater fuel loads because the plants themselves are bigger (FEMA 2014).

The existing fire regime for most of the vegetation in the East Bay Hills is considered a Fire Regime IV—a high-severity, stand-replacing regime. The fire risk in this area becomes particularly pronounced during the periodic 1- or 2-day shifts from the normal northwesterly winds to "Diablo" winds blowing in from the warm, dry regions to the east. Diablo wind fires in the 20th century have burned more than 10 times the acreage of normal wind condition fires; the wildfires of 1923 (Berkeley Fire) and 1991 (Tunnel Fire) were Diablo wind fires (FEMA 2014).

Wildfire History

The ignition sources of fires in the historical vegetation communities in the East Bay Hills have been both natural and human-caused. Fires often burned over great distances (even multiple counties) before encountering natural barriers, such as water bodies, rocky slopes, or recently burned areas. Analysis of local tree rings and other evidence in vegetation suggests that fire frequency was not constant across the landscape and depended on the type of vegetation. In general, grasslands burned more frequently than scrub or shrublands, scrub burned more frequently than some forests, and other forests burned rarely, if at all (FEMA 2014).

The recurrence interval for fires in the East Bay Hills before 1930 is estimated to have been between 10 and 30 years. The current recurrence interval is between 25 and 35 years, depending on topography and exposure. Since 1930, most of the fires in the East Bay Hills have been human-caused, first from controlled burning for rangeland improvement and more recently from accidental ignitions (FEMA 2014).

Between 1923 and 1998, 11 Diablo wind fires burned 9,840 acres of the East Bay Hills, destroying 3,542 homes and killing 26 people, with more than $2 billion in financial loss in current dollars. During the same period, three large west-wind fires burned 1,230 acres of grass, brush, trees, and four homes in the East Bay Hills (FEMA 2014).

The 1991 Oakland Tunnel Fire set a record for loss of homes to California wildfire, which has now been surpassed by the 2003 southern California fires, 2017 North Bay fires, and the 2018 Camp Fire. Until 2017, the 1991 Tunnel Fire stood as the most destructive in terms of California homes per acre. For eight decades, the 1923 Berkeley Fire, which burned 130 acres north of the project site, held the California record for the greatest number of structures destroyed by wildfire (584 structures). This fire also burned through the UC Berkeley campus and destroyed several structures on the north side of the campus. Separately, smaller fires have also ignited near the UC Berkeley campus, including, most recently, the 2017 Grizzly Fire (FEMA 2014).

The 2017 Grizzly Fire brought to the foreground the need for increased fire safety in UC Berkeley's Hill Campus. This fire occurred on August 2, 2017, during a hot but generally windless day. Despite the moderate weather, the fire burned 20 acres and required the involvement of 14 agencies in its suppression. The potential risk to public safety was illustrated by the required evacuation of four international laboratories, the public UC Botanical Garden, and seven children's summer camps. The potential for business disruptions and property damage was evident as the fire burned near Pacific Gas & Electric Company's (PG&E's) transmission lines, which are critical infrastructure, providing the sole source of power to Lawrence Berkeley National Laboratory and the UC Berkeley Campus Park (FEMA 2014).

WILDFIRE CONDITIONS ON THE PROJECT SITE

The project site is in a developed and urbanized area within Downtown Berkeley. The project site topography is relatively flat and contains gentle slopes. The project site and surrounding area are fully developed with buildings, surface parking lots, roadways, and regularly irrigated landscaped areas.

Hazard Ranking

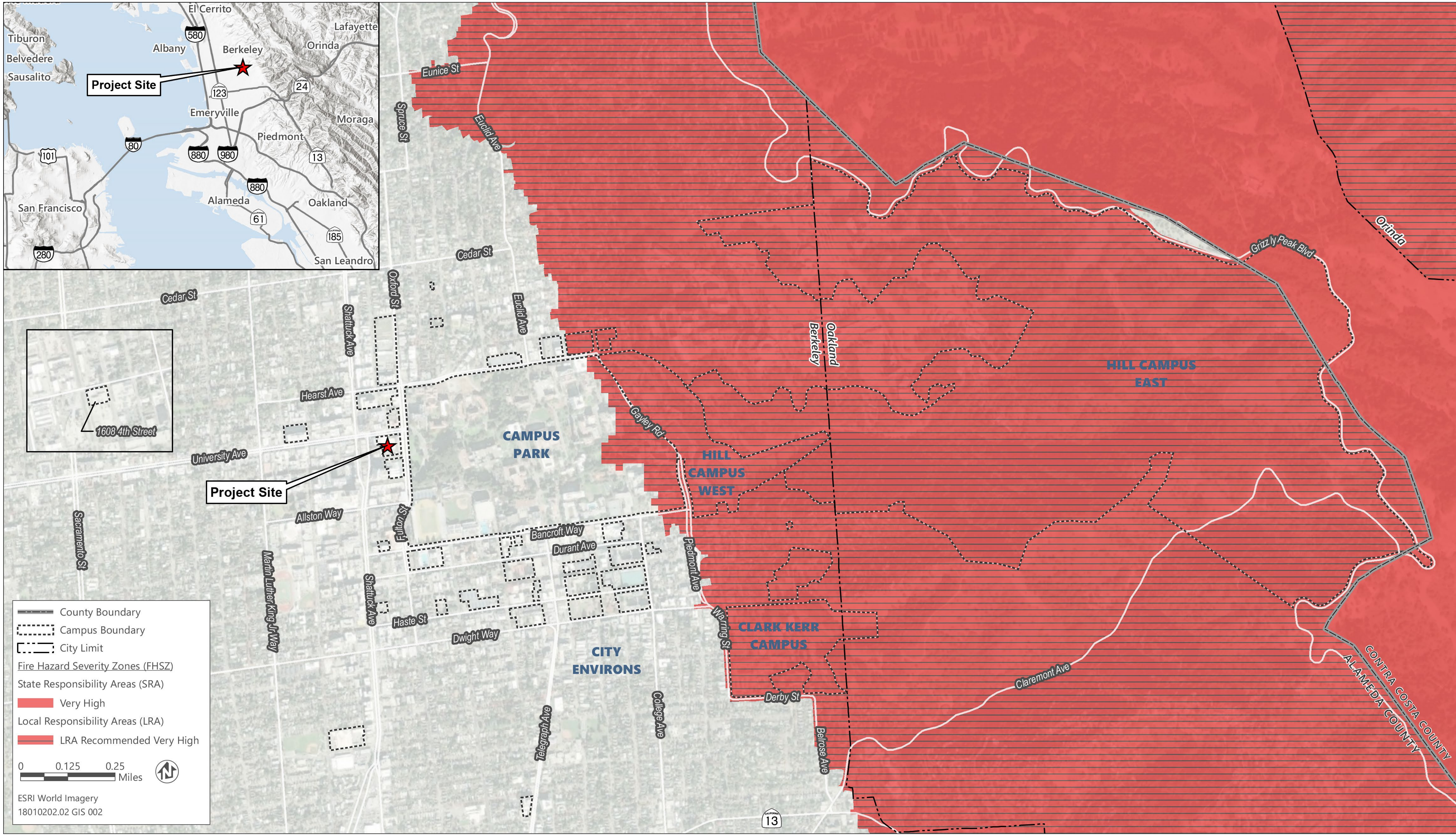
CAL FIRE designates FHSZs at the federal, state, and local level throughout the state, which are mapped as part of its Fire and Resource Assessment Program. These areas are mapped based on fuels, terrain, weather, and other relevant factors and include several classifications, including Moderate, High, and Very High. According to the currently adopted 2007 FHSZ maps for Alameda County, the project site and surrounding area are not located within an FHSZ (CAL FIRE 2008). The 2022 updated FHSZ map for Alameda County also indicates that the project site and surrounding area are not located within an FHSZ (CAL FIRE 2023). The 2022 updated map has shifted the SRA to the east of the county boundary, which is further away from the UC Berkeley campus (CAL FIRE 2023). However, the 2022 updated maps are still under regulatory review. Accordingly, this EIR uses the currently adopted 2007 maps in the analysis. As shown in Figure 3.16-1 (based on data from the adopted 2007 FHSZ maps), the closest SRA is approximately 2 miles east of the project site, in the Berkeley Hills, and is designated as a Very High FHSZ. The closest Very High FHSZ within the LRA is approximately 0.5 mile east of the project site, along the western edge of the UC Berkeley Campus Park zone. However, these areas are separated from the project site by urban development, including the UC Berkeley Campus Park. As discussed in Section 3.16.1, "Regulatory Setting," the project site is located within Fire Zone 1 (defined in Chapter 19.28 of the Berkeley Municipal Code), which is not a WUI fire area. Because the project site is located in an urbanized area, the potential risk of wildfire to occur on the project site is considered extremely low (CAL FIRE 2008).

Emergency Evacuation and Access

The project site is bounded by University Avenue to the north, Oxford Street to the east, and Addison Street to the south. The City of Berkeley identifies each of these streets as emergency evacuation and access routes (City of Berkeley 2011).

Fire Prevention

The project site is located within the City of Berkeley Fire Department's jurisdiction for fire protection and emergency medical services. The UC Berkeley Fire Prevention team is responsible for all aspects of fire, life, and panic safety within the campus community. Through authority delegated by the California State Fire Marshal, the team reviews and approves all building plans, new construction, and tenant improvements; inspects existing facilities; reviews and approves special events and pyrotechnic displays; and conducts fire investigations. The fire prevention staff also provides code consultation and fire safety training and education to staff, faculty, and students. Additionally, staff coordinates with local fire departments to familiarize them with campus facilities.



Source: Data provided by UC Berkeley and downloaded from CAL FIRE in 2023; adapted by Ascent in 2023.

Figure 3.16-1 Fire Hazard Severity Zone

3.16.3 Impact Analysis and Mitigation Measures

METHODOLOGY

The analysis of environmental impacts on wildfire risk focuses on the potential for new or increased risks associated with wildfire, including impairment of an emergency response plan; exposure of people or structures to uncontrolled fire; and postfire risks, such as slope instability or landslides. Information used in this section was obtained from scientific journal articles, reports, and relevant fire and emergency-related plans.

THRESHOLDS OF SIGNIFICANCE

An impact related to wildfire would be significant if implementation of the project would result in development in or near SRAs or lands classified as Very High FHSZs, and would:

- substantially impair an adopted emergency response plan or emergency evacuation plan;
- due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
- require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
- expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

ISSUES NOT DISCUSSED FURTHER

All potential issues related to wildfire identified in the thresholds of significance are evaluated below.

IMPACT ANALYSIS

Impact 3.16-1: Implementing the project would not substantially impair an adopted emergency response plan or emergency evacuation plan.

Implementation of the project would result in a significant impact if it would involve physical improvements that would impede emergency response to the project site or the immediate vicinity or if it would otherwise interfere with emergency evacuation plans. As discussed in Section 3.16.2, "Environmental Setting," the project site is not located within a designated FHSZ or a WUI identified by the City of Berkeley. The project site is located in an urbanized area surrounded by development. However, the project site is located approximately 0.5 mile from the Alameda County LRA Very High FHSZ and 2 miles from the state SRA Very High FHSZ, and it is therefore somewhat vulnerable to wildfires in the area. University Avenue, Oxford Street, and Addison Street, three roadways adjacent to the project site, are identified as emergency evacuation routes by the City of Berkeley (City of Berkeley 2011). Implementation of the project would not reduce vehicular access along the streets and other surrounding roadways. Although construction could temporarily disrupt adjacent traffic patterns, UC Berkeley would implement transportation (TRAN) CBP TRAN-5 as part of the project (see Appendix B for all applicable CBPs) to prevent temporary impairment of emergency evacuation procedures:

- **CBP TRAN-5:** UC Berkeley will require contractors working on major new construction or major renovation projects to develop and implement a Construction Traffic Management Plan that reduces construction-period impacts on circulation and parking within the vicinity of the project site. The Construction Traffic Management Plan will address job-site access, vehicle circulation, bicycle and pedestrian safety, and be coordinated with the City of Berkeley Public Works Department when projects require temporary modifications to City streets.

Currently, there are approximately 16 employees working in the two commercial buildings on the project site. The project would result in up to 340 and 750 employment opportunities in the South Building and North Building, respectively. Therefore, the project would have the potential to add up to 1,074 new employees in the City Environs land use zone to existing evacuation routes. As part of the project, UC Berkeley would implement UC Berkeley's CBP PS-2 to ensure that adequate emergency access is provided for new facilities:

- **CBP PS-2**: UC Berkeley will continue its partnership with the Lawrence Berkeley National Laboratory, Alameda County Fire Department, Oakland Fire Department, and Berkeley Fire Department to ensure adequate fire and emergency service levels to UC Berkeley facilities. This partnership will include consultation on the adequacy of emergency access routes to all new UC Berkeley buildings. UC Berkeley will also continue to work closely with external fire management partners related to regional wildfire prevention, including the Hills Emergency Forum, Diablo Firesafe Council, and various neighborhood groups and internal interdisciplinary planning teams.

Project operation would not result in substantial changes to circulation patterns or emergency access routes and would not block or otherwise interfere with use of evacuation routes. Project operation would not interfere with the emergency response and evacuation procedures set forth in the EOP. The UC Berkeley OEM works collaboratively to plan and prepare the campus for emergencies, educate about preparedness, and coordinate response and recovery. The UC Berkeley EOC coordinates information and resources across the campus to manage and support an emergency. The EOC can activate for a variety of emergencies, including wildfire emergencies, that may affect the campus. UC Berkeley has a robust framework for emergency preparedness and response procedures that are outlined in the EOP and coordinates emergency preparations, response, and recovery activities such as those pertaining to wildfire under its OEM. UC Berkeley implements its EOP to ensure the most effective allocation of resources for the maximum benefit and protection of the campus population in times of emergency. The project would not necessitate changes to the EOP. In addition, project development would be required to comply with applicable regulations that involve fire prevention and safety measures, such as the CBC and CFC. Examples of relevant measures included in these regulations include adequate egress capability and identification of evacuation areas. Based on the discussion above, the project would not impair implementation of an adopted emergency response plan or emergency evacuation plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.16-2: The project would not exacerbate wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, and other factors.

The project site is not located within an area susceptible to wildfire hazards, as shown in CAL FIRE's LRA map. The project site is within an LRA (i.e., an area under the jurisdiction of a local entity) that is not located within a designated FHSZ mapped by CAL FIRE (CAL FIRE 2008, 2023). In addition, the project would include project-specific and campuswide CBPs relevant to wildfire prevention. Campuswide measures related to reducing fire risk are ongoing (CBPs WF-1, WF-3, and WF-4), all of which are provided below (see Appendix B for all CBPs):

- **CBP WF-1:** UC Berkeley will continue to comply with the California Public Resources Code Section 4291, which mandates firebreaks of 100 feet around buildings or structures in, upon, or adjoining any mountainous, forested, or brush- or grass-covered lands.

- **CBP WF-3:** UC Berkeley will continue to plan and implement programs to reduce risk of wildland fires, including plan review and construction inspection programs that ensure that its projects incorporate fire prevention measures.
- **CBP WF-4:** UC Berkeley will continue to plan and collaborate with other agencies through participation in the Hills Emergency Forum.

The project site is located in Downtown Berkeley on an already developed site lacking substantial vegetation and surrounded by development. It is relatively flat and would therefore not experience wildfire-related impacts related to slope. In addition, because the site is already in an urbanized area and is not in an FHSZ or the WUI, implementing the project would not, from prevailing winds or other factors, such as vegetation, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.16-3: The project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

The project involves redeveloping a fully developed site with two new high-efficiency laboratory buildings (wet and dry) that also contain academic and administrative space and parking. Electricity would be provided through PG&E via electrical infrastructure currently servicing the surrounding area. Water would be supplied to the project site by EBMUD through an 8-inch pipe that connects to a water main underneath Oxford Street. Water for firefighting purposes would be provided via the same water main and 8-inch pipe. As part of the project, a water tank and pump room would provide adequate fire flow and water pressure to on-site structures and would be located on one of the lowest floors of each building. The project also would not require alteration of existing roadways. The proposed redevelopment is not expected to exacerbate existing wildfire risk of the UC Berkeley campus or surrounding areas because the project site is not located within an area susceptible to wildfire hazards and is within an LRA (i.e., an area under the jurisdiction of a local entity). The project site is not located within a designated FHSZ mapped by CAL FIRE (CAL FIRE 2023). Existing wildfire risk would not substantially increase or be exacerbated by the redevelopment of the project site and construction of the laboratory buildings.

As described above and in Section 3.15, “Utilities and Service Systems,” the site is served by existing utility systems, and implementing the project would not require the installation of off-site utilities (e.g., water and electrical services) and other infrastructure that could exacerbate fire risk or result in temporary or ongoing impacts on the environment. Because the project site is located outside fire hazard severity zones and the WUI, installation of on-site utilities would not exacerbate fire risks. Therefore, this impact would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

Impact 3.16-4: The project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

The project site is in an urbanized area and is surrounded by development. Construction and operation of the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides or post-fire slope instability. As discussed in more detail in Section 3.6, “Geology and Soils,” the topography of the project site is relatively flat, so the site is not located on land susceptible to landslides. As described in Section 3.9, “Hydrology and Water Quality,” the project site is also not located within a flood hazard severity zone. In addition, development of the project would be required to comply with applicable regulations to manage runoff, as described in Section 3.9, “Hydrology and Water Quality.” Therefore, construction and operation of the project would not exacerbate existing wildfire risks associated with the exposure of people or structures to significant downslope or downstream flooding or landslides, stormwater runoff, post-fire slope instability, or drainage changes. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

4 CUMULATIVE IMPACTS

4.1 CUMULATIVE IMPACTS OVERVIEW

This chapter presents the CEQA requirements pertaining to the cumulative impacts analysis and the cumulative projects that have been considered in the cumulative impacts analysis presented for each environmental resource topic.

4.2 STATE CEQA GUIDELINES REQUIREMENTS

State CEQA Guidelines Section 15130(a) requires that an EIR discuss cumulative impacts of a project "when the project's incremental effect is cumulatively considerable." As defined in State CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. Pursuant to State CEQA Guidelines Section 15065(a)(3), "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," the lead agency need not consider the effect significant.

CEQA requires an evaluation of cumulative impacts when they are significant. When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. Furthermore, according to State CEQA Guidelines Section 15130(a)(1), there is no need to evaluate cumulative impacts to which the project does not contribute.

An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus not significant when, for example, a project funds its fair share of a mitigation measure designed to alleviate the cumulative impact, according to CEQA Guidelines Section 15130(a)(3). Additionally, an EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide detail as great as that provided for the impacts that are attributable to the project alone, according to State CEQA Guidelines Section 15130(b). The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified project contributes.

CEQA Section 21094(e)(1) states that if a lead agency determines that a cumulative effect has been adequately addressed in a prior environmental impact report, that cumulative effect is not required to be examined in a later EIR. The section further indicates that cumulative effects are adequately addressed if the cumulative effect has been mitigated or avoided as a result of the prior EIR and adopted findings or can be mitigated or avoided by site-specific revisions, imposition of conditions or other means in connection with the approval of the later project (CEQA Section 21094[e][4]).

4.3 RELATED PROJECTS AND PLANS

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects (the "list approach") or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the "plan approach"). Projects that are relevant to the cumulative analysis include projects that could:

- contribute incremental environmental effects on the same resources as, and would have similar impacts to, those discussed in the EIR applicable to the project;
- be located within the defined geographic scope for the cumulative effect. The defined geographic scope is dependent on the environmental resource affected; and
- contribute impacts that coincide with the project's impacts during either construction (short-term) or operation (long-term).

This EIR uses a combination of the plan approach and list approach for the assessment of cumulative impacts. The plan included in the following cumulative analysis is the UC Berkeley 2021 Long Range Development Plan (LRDP). The 2021 LRDP includes a proposed development program through the 2036-37 academic year located throughout the Campus Park, Hill Campus West, Hill Campus East, Clark Kerr Campus, and the City Environs of up to 8,096,249 net new gross square feet of academic life, campus life, residential, and parking spaces. Anticipated development under the 2021 LRDP with the potential to be constructed concurrently with the project are summarized in Table 4-1. These developments were evaluated in the 2021 LRDP EIR. Cumulative projects considered for the analysis also include pending projects in the City of Berkeley (see Table 4-1).

Table 4-1 Cumulative Projects

Project Name	Project Location	Project Description	Project Status
City of Berkeley Projects			
1899 Oxford Street	1899 Oxford Street	The project would involve demolition of an existing non-landmarked structure and surface parking for the construction of a new seven-story, 168-unit mixed-use housing development with 68,291 square feet of new residential use and 3,420 sf new commercial space.	Planning
1998 Shattuck Avenue	1998 Shattuck Avenue	The project would include a 28-story apartment building with 489 studio units, 110 two-bedroom units, 16,370 square feet of commercial spaces, and 13,075 square feet of open space.	Planning
2109 Milvia Street	2109 Milvia Street	The project would include a 14-story mixed-use building with 105 studio apartments and 830 square feet of shops.	Planning
Berkeley Square	130 and 134 Berkeley Square	The project would include a six-story mixed-use building with 50 new units (45 studio units and five one-bedroom units) and 2,019 square feet of commercial space.	Planning
2190 Shattuck Avenue Mixed-Use Project	2190 Shattuck Avenue	The project includes redevelopment of the site with a 211,590 square-foot residential mixed-use space in Downtown Berkeley. The project would involve demolition of an existing two-story commercial building that covers the entire project site and construction of an 18-story building with retail commercial ground-floor uses, residential upper-floor uses, and a two-level subterranean parking garage with 103 parking spaces. Upon completion of construction, the project would provide 274 residential units and 10,000 square feet of commercial space, along with a 677 square-foot community art space next to the residential lobby.	Planning
HUB at Berkeley	2128 Oxford Street and 2132-2154 Center Street	The project would construct a 26-story residential tower with 456 student-oriented rental units overlooking the western edge of UC Berkeley campus, including 72 studio units, 97 two-bedroom units, 265 three-bedroom units, and 22 four-bedroom units. The project would also include 14,961 square feet of retail space.	Planning

Project Name	Project Location	Project Description	Project Status
2113 Kittredge Street	2113-15 Kittredge Street	The project would involve the adaptive reuse of the 15-story California Theater. The project would create 214 dwelling units and a 20,000-square-foot live theater facility.	Planning
2065 Kittredge Street	2065 Kittredge Street	The project would demolish portions of existing City Landmark commercial buildings and construct an 8-story-tall mixed-use building with 187 dwelling units, 4,993 square feet of commercial space, and 42 parking spaces.	Planning
1951 Shattuck Avenue Mixed-Use Project	1951 Shattuck Avenue	The project would involve demolition of the existing buildings on the project site and construction of a new mixed-use building. The new building would have the following main components: a 100-space subterranean parking lot, 5,178 square feet of ground-floor retail, a total of 163 dwelling units, a ground-floor lobby, back-of-house space, a leasing office, and 120-space indoor bike storage area; and 12,480 sf of usable open space to be located on the 2nd floor and on the roof.	Anticipated 24-month construction duration; start date unknown
Shattuck Square	2023 Shattuck Avenue	The project would include demolition of the existing, on-site structure and construction of new seven-story, mixed-use building with 48 studio units and 1,250 square feet of ground-level commercial space.	Planning
UC Berkeley Projects (Pending Projects included in the 2021 LRDP)			
Bancroft Parking Structure Replacement	Campus Park	The project would involve the replacement of the Bancroft Parking Structure with a multi-level garage. The project would help maintain existing capacity and provide much-needed upgrades to an aging structure.	Anticipated construction: summer 2024 to 2025
Heathcock Hall	Campus Park	The project would involve construction of an approximately 81,700-gross-square-foot new academic building located at Gayley Road and University Drive. The building would include up to six floors and a partial basement, including a mix of flexible and operationally resilient laboratories, associated non-lab workspace, office space, and other support and collaboration meeting spaces for researchers, faculty, and students across multiple disciplines affiliated with UC Berkeley's College of Chemistry.	Anticipated construction: October 2024 to 2026
Anchor House Student Housing	City Environs	The project would involve construction of a student housing building on Oxford Street. The project would demolish the existing on-site structures. The construction and operation of the new 16-story (14 stories above ground) mixed-use building would include 244 apartments with individual bedrooms for 722 students.	Under construction
Berkeley Haas Entrepreneurship Hub - 2232 Piedmont Avenue	Campus Park	The project would involve renovation and restoration of 2232 Piedmont Avenue for the new Entrepreneurship Hub (EHub) for the UC Berkeley Haas School of Business. The EHub would be a gathering space that includes conference rooms, lounges, mentorship offices, and storage for student start-ups.	Under construction
Dwinelle Annex Renovation	Campus Park	The project would involve seismic and life-safety improvements and the creation of a new home for the Disabled Students Program (DSP). This project would rehabilitate the existing two-story structure within the existing building footprint and make efficient use of the central corridor for access to all spaces. This project would provide approximately 8,800 gross square feet of renewed space that supports DSP program requirements, including improvements to offices, meeting spaces, circulation, and entry.	Under construction

Project Name	Project Location	Project Description	Project Status
Bechtel Engineering Center Renovation & Addition	Campus Park	The project would involve construction of a new Engineering Center situated at the location of the existing Bechtel Engineering Center. The new building would add approximately 35,500 square feet of space across two new floors. It would serve as a hub to support students' growth and passion for driving innovation and positive change	Under construction
The Gateway	Campus Park	The project would involve construction of an approximately 367,270-square-foot academic building to create a new home for the College of Computing, Data Science, and Society. The Gateway is a collaborative space where approximately 1,325 faculty, students, researchers, and staff will work together to create accessible and equitable educational opportunities cand catalyze groundbreaking research to meet society's greatest challenges	Under construction
People's Park Housing	City Environs	The project would involve demolition of the existing on-site structures and park amenities, and the construction and operation of two new mixed-use buildings and revitalized open space, including preservation of two-thirds of the site as open space and one-third of the site would become new housing for more than 1,100 undergraduate students and permanent supportive housing for more than 100 persons.	To be determined
Switch Station #8	Campus Park	The project would involve installation of new switch gear and seismic improvements to the Old Art Gallery, in support of the Clean Energy Campus project.	Under construction
Undergraduate Academic Building (formerly Academic Replacement Building)	Campus Park	The project would involve development of the Undergraduate Academic Building to create a new hub for undergraduate instruction in the center of the UC Berkeley Campus Park. The building would replace a surface parking lot to the west of Dwinelle Hall in line with the 2022 Campus Master Plan's vision. The Undergraduate Academic Building is an L-shaped structure with a five-story wing along Campanile Way and a three-story wing facing Dwinelle Hall. There would be 27 new classrooms of varying sizes, from small to large, with flexible seating arrangements to support various instructional styles. Modern instructional technologies would be incorporated into the classrooms, and large windows would provide plenty of natural light and ventilation.	Under construction
UC Berkeley Projects (Pending Projects not included in the 2021 LRDP)			
Goldman School of Public Policy Landscape Improvement	City Environs	The project would involve removal of existing brick pathways, sections of dry-laid stone walls, and overgrown landscaping. These removals would make way for a series of transformative enhancements that would breathe new life into the Goldman School's outdoor spaces.	Under construction
Moffitt Library Seismic Improvements	Campus Park	The project would involve renovation of Levels 1–3 of the Moffitt Library to improve student study space, classrooms, and maker spaces.	Under construction
Beach Volleyball	City Environs	The project would involve construction of a five-court sand volleyball facility and an approximately 3,500 square foot team building with locker rooms and restrooms to serve the facility. Fan amenities would include berm seating (no fixed seating), and public restrooms. The project site is bounded by Bancroft Way to the South, Fulton Street/Oxford Street to the west and north and Edwards Stadium to the east.	Planning

Sources: City of Berkeley 2021, 2022, 2023a, 2023b, 2023c, 2023d; The Real Deal 2023; UC Berkeley 2023; Studio KDA 2021; Trachtenberg Architects 2022; DLR Group 2023.

4.4 CUMULATIVE IMPACT ANALYSIS

The following sections contain a discussion of the cumulative effects anticipated from implementation of the project, together with related past, present, and reasonably foreseeable probable future projects listed in Table 4-1 and development anticipated under the 2021 LRDP. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."

For purposes of this EIR, the incremental effect of the project would be cumulatively considerable, and thus significant in and of itself, if the cumulative effect of related activities (past, current, and probable future activities), together with the effect of the project, are significant, and the incremental contribution of the project to these effects is substantial enough to be considered cumulatively considerable.

Such an outcome can occur in one of two ways. First, the cumulative effect of related activities (past, current, and probable future activities) without the project is not significant, but the incremental effect of the project, when added to the cumulative effect of the related projects, is substantial enough to result in a new cumulatively significant impact. Or second, the cumulative effect of related activities (past, current, and probable future activities) is already significant and the addition of the effect of the project is substantial enough to make the project's contribution cumulatively considerable and thus significant in and of itself.

This cumulative analysis employs a multi-step approach: (i) assess whether the project, together with past, present, and probable future projects, will cause significant cumulative impacts, (ii) identify the project's contribution, without mitigation, to existing/anticipated (without the project) cumulative effects, (iii) determine whether, even with mitigation, the project's incremental contribution would be cumulatively considerable, (iv) if the answer is yes, to identify any additional potentially feasible mitigation that may be available, and (v) to identify the impact significance conclusion after implementation of all (project-specific and any additional) potentially feasible mitigation.

4.4.1 Aesthetics

The cumulative context for aesthetics impact assessment includes the list of City of Berkeley and UC Berkeley projects listed in Table 4-1.

As listed in Table 4-1 above, UC Berkeley's cumulative projects, including anticipated development under the 2021 LRDP, would include development scattered throughout the campus, including the Campus Park and City Environs. Cumulative projects on the UC Berkeley campus would be intended primarily to improve aging infrastructure, accommodate upgrades in technology, support an increased UC Berkeley population, and provide more efficient use of space. These projects could increase building height (e.g., Heathcock Hall Project and Anchor House Student Housing), which could alter scenic vistas, depending on their location. Cumulative projects that would result in increased building height would be expected to occur in existing urban areas, primarily in the form of infill/intensification on sites either already developed and/or underutilized, such as 1998 Shattuck Avenue, 2109 Milvia Street, and 2190 Shattuck Avenue Mixed-Use Project. These cumulative projects would have lesser impact on scenic vistas than an undeveloped area or isolated parcel away from existing development. Generally, current public viewing locations in urban settings are obstructed as a result of the natural topography, existing mature trees, and/or existing buildings. In addition, cumulative projects would be required to conform to existing UC Berkeley policies that are in place to preserve and enhance significant design features pertaining to scenic vistas, scenic quality, and to reduce light and glare. Therefore, development within urban settings would not result in significant impacts to aesthetic resources.

Cumulative projects within the jurisdiction of the City of Berkeley would require respective review subject to relevant City policies pertaining to aesthetics, including general plan, specific plan, and municipal code policies and regulations that ensure compatibility between various developments and preservation of significant scenic features, such as the East Bay hills and San Francisco Bay. In addition, there is limited space in the City of Berkeley for new development, most cumulative projects would be infill, and the overall scenic quality of the urbanized area would be unlikely to be substantially changed by the cumulative development of these projects. With the development review mechanisms in place for the City of Berkeley, cumulative projects are not anticipated to create substantial impacts to aesthetic resources.

Based on the discussion above, cumulative projects within close proximity to the project site would not result in significant impacts related to aesthetic resources. As discussed in Impact 3.1-3, the project is located in an urban area and would be subject to UC Berkeley's requirements and continuing best practices (CBPs). CBPs AES-1, AES-2, and AES-4 require the project to be consistent with applicable UC Berkeley regulations governing scenic resources and quality preservation (e.g., UC Berkeley Physical Design Framework and Campus Design Standards). CBPs AES-6 and AES-7 require project lighting to be designed in accordance with applicable standards, such as the California Building Code. As such, the project would not be cumulatively considerable with respect to aesthetics, and the project, together with projects identified above in Table 4-1, would not result in significant cumulative impacts to aesthetics resources.

For these reasons, the project, together with past, present, and probable future projects, would not cause significant cumulative aesthetic impact, and the cumulative impact would be **less than significant**.

4.4.2 Air Quality

The cumulative context for the assessment of impacts related to air quality is the San Francisco Bay Area Air Basin (SFBAAB). Potential cumulative air quality impacts would result when cumulative projects' emissions would combine to degrade air quality conditions below attainment levels for SFBAAB, delay attainment of air quality standards, affect sensitive receptors, or subject surrounding areas to objectionable odors.

AIR QUALITY PLAN CONSISTENCY

The project, development planned under the 2021 LRDP, and the cumulative projects listed in Table 4-1 would have the potential to result in cumulative impact to air quality plans, if they would conflict with or obstruct implementation of the 2017 Clean Air Plan. The project and the cumulative projects would be required to comply with existing federal, state, and local regulations, including the 2017 Clean Air Plan, which would ensure that conflict with applicable air quality plans would not occur. Therefore, the project together with the cumulative projects would not result in a cumulative impact related to conflict with applicable air quality plans. The cumulative impact would be less than significant.

CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

Air pollutants impacts are cumulative in nature because no single project generates enough emissions to cause an air basin to be designated nonattainment. Therefore, cumulative impacts are discussed under Impact 3.2-2 in Section 3.2, "Air Quality." Impact 3.2-2 discussed the cumulative impacts related to criteria air pollutants and ozone precursors that would contribute to the nonattainment status of SFBAAB. As analyzed in Impact 3.2-2, construction and operation of the project would not exceed adopted Bay Area Air Quality Management District (BAAQMD) thresholds for criteria air pollutants and ozone precursors. Thus, the project is not anticipated to result in cumulatively considerably increases in criteria air pollutants and ozone precursors that would contribute to the nonattainment status of SFBAAB. The cumulative impact would be less than significant.

TOXIC AIR CONTAMINANTS

The cumulative health risk was evaluated under Impact 3.2-3 in Section 3.2, "Air Quality." As discussed in Impact 3.2-3, the sum of existing sources in the project vicinity exceeds the cumulative threshold for both cancer risk and annual fine particulate matter ($PM_{2.5}$) concentrations. The cumulative impact would be significant. However, the project would implement CBPs AIR-2 and AIR-3, which require implementation of control measures to reduce emissions of fugitive dust and diesel particulate matter (PM). In addition, implementation of Mitigation Measure 3.2-3 (Clean Equipment During Construction) would substantially reduce diesel emissions associated with construction activities.

Thus, the project would not result in a considerable contribution to this significant cumulative impact. The cumulative impact related to exposing sensitive receptors to substantial concentrations of TACs would be less than significant.

CARBON MONOXIDE HOT SPOTS

The project, development under the 2021 LRDP, and the cumulative projects would have the potential to result in a significant cumulative impact associated with sensitive receptors if they would expose sensitive receptors to a substantial concentration of carbon monoxide (CO). The CO effects on sensitive receptors are discussed under Impact 3.2-4 in Section 3.2, "Air Quality." As discussed in Impact 3.2-4, the project-generated traffic volumes would be below the BAAQMD's screening criteria established for evaluating CO impacts. Therefore, the project would result in less-than-significant impacts related to CO emissions. Although cumulative projects (e.g., City of Berkeley's projects identified in Table 4-1) would involve residential development that could locate more sensitive receptors near pollutant concentration, the cumulative projects would be required to comply with emission thresholds for CO. Therefore, the project together with the cumulative projects would not result in a substantial incremental effect that would result in a significant cumulative impact related to exposing sensitive receptors to a substantial concentration of CO. This cumulative impact would be less than significant.

ODORS

The project development under the 2021 LRDP and the cumulative projects also would have the potential to result in a cumulative impact associated with objectionable odors if they would create objectionable odors or place sensitive receptors next to existing objectionable odors. Construction of the project and cumulative projects would involve the use of equipment with diesel engines. Exhaust odors from diesel engines may be considered offensive to some individuals. However, minor odors from the use of heavy-duty diesel equipment would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. Given the temporary nature of construction activities and the dispersion properties of odors resulting from heavy-duty diesel equipment, construction activities are not anticipated to result in an odor-related impact. BAAQMD identifies land uses typically associated with potential odor impacts, including coffee roasters, industrial uses, waste and compost facilities, wastewater treatment plants, water treatment plans, and various industrial and agricultural uses. The cumulative projects would involve mostly mixed-use development (e.g., commercial and residential uses), which are not typically associated with operational odors. Therefore, the project together with the cumulative projects would not result in a substantial incremental effect that would result in a significant cumulative impact related to odors. The cumulative impact would be less than significant.

SUMMARY

Based on the discussion above and taking into consideration implementation of CBPs and project-specific mitigation, the project would not result in a considerable contribution such that a new significant cumulative air quality impact would occur. The cumulative impact would be **less than significant**.

4.4.3 Biological Resources

Sensitive habitats for biological resources in the vicinity of the project site and in the San Francisco Bay Area region have been modified over time, as land has been developed and converted to urban uses. Future projects in the region could continue to result in losses of sensitive habitats and sensitive species; however, the cumulative projects (Table 4-1) consist primarily of infill development on properties in urbanized locations that previously have been disturbed. Although individual projects would be required to mitigate for significant impacts on a project-by-project basis, they may result in residual impacts that combine with the existing adverse condition to create a significant cumulative condition related to special-status species and sensitive habitats.

The project site and vicinity are located in highly urbanized Downtown Berkeley. No special-status plants occur on the project site. In addition, most of the special-status wildlife species identified as having potential to occur within the vicinity of the project site (see Appendix D) do not occur on the project site. However, two special-status bird species, American peregrine falcon and white-tailed kite, may occur in suitable habitat areas adjacent to the project site. The project would implement CBP BIO-1, which requires focused surveys for nesting birds prior to tree removal and initial construction activities during the bird nesting season (February 1 to August 31). Implementation of CBP BIO-1 would result in detection of nesting birds and avoidance of active nests through implementation of no-disturbance setbacks until the nests are no longer active, such that impacts on nesting special-status or common birds would be less than significant. As discussed in Section 3.3, "Biological Resources," the project site neither connects nor separates any significant wildlife habitat areas, and implementation of the project would not substantially disrupt wildlife movement or use of migratory corridors. However, construction of new buildings may result in increased bird strikes. The project would implement Mitigation Measure 3.3-2, which would reduce bird collision risk associated with on-site buildings through implementation of bird-friendly building design elements.

While a cumulative impact on biological resources may occur as a result of implementation of the cumulative projects, the project's impact on biological resources would be reduced to a less-than-significant impact with implementation of CBPs and mitigation, and the project would not have a considerable contribution to an adverse cumulative condition with respect to biological resources. The cumulative impact would be **less than significant**.

4.4.4 Archaeological, Historical, and Tribal Cultural Resources

The cumulative context for cultural resources is the City of Berkeley. Past, present, and future development, including the project has the potential to impact both known and unknown historic resources, archaeological resources, tribal cultural resources, and human remains. The cumulative effect of future development is the continued loss of cultural resources and tribal cultural resources. Because all significant cultural and tribal cultural resources are unique and non-renewable, the cumulative impact from past, present, and future development would be potentially significant. Table 4-1 lists the cumulative projects in the City of Berkeley and UC Berkeley campus. Development of these projects and implementation of the 2021 LRDP could damage or destroy known or unknown cultural and/or tribal cultural resources, or human remains resulting in cumulative impacts.

Implementation of cumulative projects listed in Table 4-1 and development under the 2021 LRDP could result in impacts to known or unknown archaeological, historical, tribal cultural resources, and human remains. Anticipated development under the 2021 LRDP would have the potential to demolish buildings that may be historic. Construction of the cumulative projects could involve ground disturbance below the level of previous ground disturbance that could result in the discovery of archaeological resources, tribal cultural resources, or human remains. While there are existing regulations and practices for the protection of cultural resources would be implemented with cumulative projects, construction activities still have the potential to result in significant cumulative impacts related to archaeological, historical, tribal cultural resources, and human remains.

Project impacts to unique archaeological resources and tribal cultural resources (Impacts 3.4-2 and 3.4-3) potentially present on the project site would be mitigated to less than significant with implementation of Mitigation Measure 3.4-2. The mitigation measure would reduce impacts to individual resources on the project site if discovered during construction. Project impacts to human remains would be less than significant with compliance with existing regulations (e.g., Health and Safety Code Section 7050.5) and implementation of UC Berkeley CBP CUL-1. Since the project is located on existing developed parcels, this would reduce the likelihood of encountering potential archaeological resources, tribal cultural resources, and human remains on-site unless ground disturbance activities excavate to a greater extent than occurred during prior construction on the project site. Therefore, with implementation of Mitigation Measure 3.4-2 and compliance with existing regulations, the project would not have a considerable contribution to significant cumulative impacts related to unique archaeological resources, tribal cultural resources, and human remains. As such, the cumulative impacts of the project related to archaeological resources, tribal cultural resources, and human remains would be less than significant.

For historical resources, as detailed in Impact 3.4-1, the project would remove the Ernest A. Heron Building and the Martha E. Sell Building. The Heron and Sell buildings are both individually listed as City of Berkeley Landmarks and are contributors to the National Register of Historic Places-eligible Shattuck Avenue Downtown Historic District. Additionally, the Martha E. Sell building is individually listed on the National Register of Historic Places and California Register of Historical Resources. Removal of the buildings would result in substantial adverse changes to the resources individually as well as the Shattuck Avenue Downtown Historic District, resulting in significant impacts to historical resources. Although the project would implement Mitigation Measures 3.4-1a and 3.4-1b to reduce impacts to historical resources, the project would remove two historic resources (Ernest A. Heron and Martha E. Sell buildings) resulting in the loss of those two individually significant buildings, as well as result in a substantial adverse change to the Shattuck Avenue Downtown Historic District by demolishing two contributors. The project would result in significant and unavoidable impacts to historic resources. Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. Therefore, the project's contribution to historic resources impact would be cumulatively considerable. As such, the cumulative impact of the project related to historical resources would be significant and unavoidable.

Based on the discussion above, the project's impact on archaeological resources, tribal cultural resources, and human remains would be reduced to a less-than-significant impact with implementation of mitigation, However, the project would result in a significant and unmitigable impact to historic resources. Therefore, the project would have a considerable contribution to an adverse cumulative condition with respect to cultural resources. The cumulative impact would be **significant and unavoidable**.

4.4.5 Energy

The cumulative context for the assessment of impacts related to energy is the State of California, including the Pacific Gas and Electric Company (PG&E) service area and UC Berkeley campus. A cumulative impact would occur if the project in combination with the cumulative projects would result in potential significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy or conflict with a state or local plan for renewable energy or energy efficiency.

Implementation of the 2021 LRDP and cumulative projects identified in Table 4-1 would generate increased energy (e.g., electricity and natural gas) demand. However, all projects within the PG&E service area would be required to comply with the Building Energy Efficiency Standards and California Green Building Standards Code, which would contribute to minimizing wasteful energy consumption and promoting renewable energy source. In addition, cumulative projects within the jurisdiction of the City of Berkeley would be required to comply with general plan policies related to energy efficiency. Similar to the project, all UC Berkeley projects, including development under the 2021 LRDP, would be required to comply with UC and UC Berkeley sustainability goals and policies identified in Section 3.5, "Energy."

As discussed in Impact 3.5-1, construction of the project would follow standard practices related to energy consumption. There would be no atypical energy demand associated with the project construction. Energy would not be consumed in a wasteful, inefficient, or unnecessary manner when compared to other construction activities in the region. Project operation would increase energy consumption compared to existing conditions. The project would include sustainable features, including providing native and/or drought-resistant landscaping plants, achieving LEED Gold certification, and eliminating natural gas consumption, to ensure that no wasteful, inefficient, or unnecessary consumption of energy would occur during operation. The project and the cumulative projects would be required to comply with the most current building codes, including requirements for achieving appropriate energy efficiency standards (e.g., Title 24 standards or better).

As discussed under Impact 3.5-2 in Section 3.5, "Energy," implementation of the project would support the goals and strategies in the state's Energy Efficiency Action Plan and the UC Sustainable Practices Policy. Similarly, the cumulative projects would be required to demonstrate consistency with the state's Energy Efficiency Action Plan during the approval process and would be required to comply with the most recent California Energy Code. Therefore, the project, together with the cumulative projects, would not result in a significant cumulative energy. This cumulative impact would be **less than significant**.

4.4.6 Geology and Soils

Geological and soils impacts are site-specific rather than regional in nature and any cumulative projects, including projects listed in Table 4-1, would be subject to, at minimum, uniform site development and construction and regulatory standards relative to seismic and other geological conditions that are prevalent with the region, such as the California Building Code standards. As discussed in Section 3.6, "Geology and Soil," the project would have less-than-significant impacts related to geology and soils with implementation of UC Berkeley CBPs GEO-1 through GEO-4, GEO-9, and GEO-10. As such, the project, together with the cumulative projects, would not result in a substantial incremental effect that would result in a significant cumulative impact related to geology and soils. Therefore, the cumulative geology and soils impacts would be **less than significant**.

4.4.7 Greenhouse Gas Emissions and Climate Change

The issue of global climate change is inherently a cumulative issue because greenhouse gas (GHG) emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change is addressed only as a cumulative impact under Impact 3.7-1 in Section 3.7, "Greenhouse Gas Emissions and Climate Change." As analyzed in Impact 3.7-1, the project would result in GHG emissions during construction and operation. However, the project would be consistent with the UC Sustainable Practices Policy and would result in a net reduction in Scope 1 and 2 emissions. Although the project would result in an increase in Scope 3 emissions, the impacts related to GHG emissions would be mitigated to a less-than-significant level with implementation of Mitigation Measure 3.7-1. In addition, the project would be fully electric and would procure carbon free energy, which supports the goal of the Final 2022 Scoping Plan for Achieving Carbon Neutrality to phase out the use of fossil gas for heating homes and buildings. The project also would achieve LEED Gold certification. Therefore, the project would not generate GHG emissions that would cause a significant impact with implementation of Mitigation Measure 3.7-1 or conflict with an adopted GHG reduction plan. Thus, while the project, in combination with other cumulative projects may result in a significant cumulative impact related to GHG emissions, the project's contribution to GHG emissions and climate change would not be cumulatively considerable. The cumulative impact would be **less than significant**.

4.4.8 Hazards and Hazardous Materials

The cumulative context for the assessment impacts related to hazards and hazardous materials is the project site and surrounding areas. A cumulative impact would occur if the project in combination with the cumulative projects would result in potential significant impacts from hazardous materials and would interfere with implementation of emergency response plans.

Implementation of the 2021 LRDP and cumulative projects listed in Table 4-1 would involve the use of hazardous materials. Hazardous materials could be released into the environment during ground disturbance or building demolition as future development and redevelopment occur. Cumulative projects that involve the routine transport, use, and disposal of hazardous materials during construction and operation would be required to comply with federal, state, regional, and local regulatory requirements, including those that govern worker safety, storage quantities of hazardous materials, disclosure of potential health impacts, transportation of hazardous materials, and hazardous emissions. Projects undertaken by UC Berkeley, including development under the 2021 LRDP, would also be subject to UC Berkeley standards and CBPs identified in Section 3.8 to ensure that project sites are assessed for potentially hazardous conditions and actions are taken to protect the health and safety of the public.

As discussed in Section 3.8, "Hazards and Hazardous Materials," compliance with existing laws, regulations, policies, and procedures would be sufficient to ensure that the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts related to hazards and hazardous materials are generally localized and existing laws regulate the proper use and storage of hazardous materials, spill prevention and containment, and cleanup and reporting of any hazardous materials releases. Therefore, the project in combination with the cumulative projects are not anticipated to create a significant cumulative hazard to the public or the environment.

Development under the 2021 LRDP and cumulative projects listed in Table 4-1 above would involve construction activities within roadway rights-of-way that could result in temporary disruptions on emergency access and evacuation roads. In addition, cumulative projects that contribute to an increase in vehicle trips on local roadways could result in delays for emergency response providers. However, future projects would be required to comply with emergency access requirements identified in the California Building Code and California Fire Code and obtain all applicable engineering permits for activities within the public right-of-way, which may require preparation and implementation of a traffic control plan. UC Berkeley projects, including development under the 2021 LRDP, would also be subject to UC Berkeley policies and CBPs identified in Section 3.8 to ensure that projects are designed for adequate emergency access and that project-generated traffic does not disrupt emergency response. Compliance with these requirements would ensure that future projects would not interfere with the operations of UC Berkeley and/or local emergency response providers in responding to emergency situations. Therefore, the project in combination with cumulative projects would not result in a significant cumulative impact related to emergency response or evacuation.

Based on the discussion above, the project in combination with the cumulative projects would not result in a substantial incremental effect that would result in a significant cumulative impact related to hazards and hazardous materials. Therefore, the cumulative impact would be **less than significant**.

4.4.9 Hydrology and Water Quality

The cumulative context for the assessment of hydrology and water quality impacts includes cumulative projects identified in Table 4-1 and anticipated development under the 2021 LRDP that have the potential to affect the watershed or the underlying groundwater aquifers. A cumulative impact would occur if the project in combination with the cumulative projects would substantially degrade water quality, result in runoff that would exceed capacity of stormwater drainage systems, or decrease groundwater supplies or interfere with groundwater recharge.

Implementation of the 2021 LRDP and cumulative projects listed in Table 4-1 would involve activities such as ground disturbance, groundwater dewatering, the use of hazardous materials, and increases in impervious surfaces have potential to increase pollutants in receiving waters. However, these projects would be required to comply with applicable permits and regulations, which may include the National Pollutant Discharge Elimination System (NPDES) Construction General Permit and Phase II Small Municipal Separate Storm Sewer System (MS4) permit, UC Berkeley CBPs and policies, and City municipal codes, standards of approval, and policies. The water quality regulations implemented by the San Francisco Bay Regional Water Quality Control Board take a basin-wide approach and consider water quality impairment in a regional context. For example, the NPDES Construction General Permit ties receiving water limitations and Basin Plan objectives to terms and conditions of the permit and the MS4 permit encompasses all of the surrounding municipalities to manage stormwater systems and be collectively protective of water quality. In accordance with these permits, cumulative projects would be required to implement structural and nonstructural source-control best management practices (BMPs) to reduce the potential for pollutants to enter runoff and treatment-control BMPs to remove pollutants from stormwater. As discussed in Section 3.9, “Hydrology and Water Quality,” implementation of the project would be subject to the same regulatory processes and permits described above and would not violate water quality standards or waste discharge requirements. Therefore, the project in combination with the cumulative projects would not substantially degrade water quality and would not combine to result in a significant cumulative impact.

Development under the 2021 LRDP and cumulative projects listed in Table 4-1 above would have the potential to increase impervious surfaces within the cumulative setting have potential to increase the volume of stormwater runoff that enters the City of Berkeley’s stormwater drainage system. However, these projects would be required to comply with the requirements of the Phase II Small MS4 Permit and incorporate low impact development site design and BMPs to address post-construction stormwater runoff. UC Berkeley projects, including development under the 2021 LRDP, would also be subject to UC Berkeley policies and CBPs identified in Section 3.9, "Hydrology and Water Quality," to ensure that the aggregate effect of projects creates no net increase in stormwater runoff over existing conditions. As discussed in Section 3.9, the project would be subject to the same regulatory processes described above. In addition, the project would result in an approximately 8.6 percent net decrease in impervious surfaces at the project site, which would decrease the volume of stormwater runoff from the existing pre-development condition. Therefore, the project in combination with the cumulative projects would not be expected to exceed the capacity of stormwater drainage systems and would not result in a significant cumulative impact.

Cumulative projects that increase impervious surfaces within the cumulative setting have potential to decrease the area for groundwater recharge. However, these projects would be required to comply with the requirements of the Phase II Small MS4 Permit and incorporate low impact development site design and BMPs to increase the pervious surface area for rainwater infiltration and increase the potential for groundwater recharge. UC Berkeley projects, including development under the 2021 LRDP, would also be subject to UC Berkeley policies and CBPs identified in Section 3.9, "Hydrology and Water Quality," to ensure that there is no net decrease in the amount of water recharged to groundwater. Therefore, the project in combination with the cumulative projects would not be expected to interfere with groundwater recharge and would not result in a significant cumulative impact.

Based on the discussion above, the project in combination with the cumulative projects would not result in a substantial incremental effect that would result in a significant cumulative impact related to hydrology and water quality. The cumulative impact would be **less than significant**.

4.4.10 Land Use and Planning

The cumulative context for land use and planning impact assessment includes development under the 2021 LRDP and the list of City of Berkeley and UC Berkeley projects identified in Table 4-1. The project would result in significant cumulative land use impacts if it, in combination with cumulative projects, would result in physical division of an established community or conflicts with applicable land use plans, policies, or regulations. Private-sector projects on land not owned by UC Berkeley within the cumulative setting would be subject to separate environmental review as well as local policies such as the relevant City of Berkeley General Plan policies.

Compliance with relevant UC Berkeley regulations identified in Section 3.10.1, "Regulatory Setting," would minimize the project potential impacts with respect to land use and planning. Neither the project nor the cumulative projects include projects that would result in division of an existing established community. Cumulative projects within the jurisdiction of the City of Berkeley would be subject to development guidance in a general plan, prescribed by zoning, and subject to other applicable land use plans to avoid conflicting with plans adopted to avoid or mitigate environmental effects. Cumulative projects within UC Berkeley campus, including development under the 2021 LRDP, would be subject to similar regulations as described in Section 3.10, "Land Use and Planning," of this EIR. Accordingly, because the project would not, in combination with other projects, result in physical division of an established community or conflicts with applicable land use plans, policies, or regulations intended to avoid or minimize environmental effects, a cumulative significant impact would not occur. Therefore, the project would not result in a considerable contribution to a significant cumulative impact related to land use. The cumulative impact would be **less than significant**.

4.4.11 Noise and Vibration

The cumulative context for assessment related to noise is the vicinity of the project site (i.e., within 500 feet). Noise impacts typically occur locally because noise levels dissipate rapidly with increased distance from the source. When discussing increases in noise levels, a doubling of a noise source is necessary to result in a 3 decibel (dB) (i.e., audible) increase. Thus, for cumulative noise impacts to occur, noise sources must combine to result in an increase in noise at the same receptor that otherwise would not experience the increase attributed to the combined (or cumulative) condition.

As discussed in Section 3.11 "Noise and Vibration," implementation of the project would not result in the exposure of people to excessive noise levels associated with airport activity or adverse vibration effects on off-site receivers. Therefore, the project would not combine to create considerable changes and cumulative impacts related to these issues, and these impacts are not discussed further.

CONSTRUCTION-RELATED NOISE AND VIBRATION

Construction-related noise and vibration are typically considered localized impacts, affecting only receptors closest to construction activities. Therefore, unless construction of cumulative projects occurs in close proximity to each other (i.e., less than 500 feet) and at the same time, noise and vibration from individual construction projects have little chance of combining to create cumulative impacts. For these reasons, cumulative noise and vibration impacts from construction are generally less than significant.

Of the cumulative projects in Table 4-1, the projects at 1998 Shattuck Avenue, 130 and 140 Berkeley Square, 2128 Oxford Street and 2132-2154 Center Street, 1951 Shattuck Avenue, and 2023 Shattuck Avenue are within 500 feet of the project site. These projects are currently in the planning phase and the dates of construction are currently unknown. Due to the distribution characteristics of sound and vibration, construction noise and vibration are generally limited to the vicinity of individual project sites. As discussed in Section 3.11, "Noise and Vibration," noise and vibration associated with project construction would be intermittent, temporary, and would fluctuate depending on the phase of construction. In addition, mitigation measures are in place that would generally limit construction noise to the less-sensitive times of the day and UC construction activities would implement CBPs and noise- and vibration-reducing measures that would minimize construction noise and vibration. Specifically, Mitigation Measure 3.11-1 would limit the periods during which construction activities would occur in the vicinity of nearby noise-sensitive land uses and would require a vibration control plan to be prepared and implemented to reduce vibration impacts, if necessary. Although construction noise impacts associated with the project would be significant and unavoidable even with mitigation measures, because construction activities would have to be concurrent to have a cumulative effect, there would be no cumulative impacts related to construction noise and vibration to which the project would contribute. Additionally, all cumulative projects would be subject to and required to comply with applicable City noise standards, and UC Berkeley projects, including development under the 2021 LRDP, would also be subject to UC Berkeley policies and CBPs detailed above to ensure that projects are designed to minimize noise impacts. For these reasons, the project, in combination with the cumulative projects, would not result in a substantial incremental effect that would result in a significant cumulative impact related to construction noise. The cumulative impact would be less than significant.

OPERATIONAL NOISE

Implementation of the project would result in increases in traffic volumes along affected roadway segments and would potentially generate an increase in traffic source noise levels. Table 4-2 summarizes the increase in traffic-related noise on project-affected roadway segments under cumulative and cumulative plus project conditions.

Table 4-2 Predicted Increases in Traffic Noise Levels

Roadway	From	To	Cumulative Conditions Noise Levels L_{dn} (dBA) at 50 feet	Cumulative + Project Conditions Noise Levels L_{dn} (dBA) at 50 feet	Predicted Change (dBA)	Cumulatively Considerable Increase?
University Avenue	West of Shattuck Avenue		67.5	67.5	0.0	No
University Avenue	Shattuck Avenue	Project Driveway	66.9	66.9	0.0	No
University Avenue	Project Driveway	Oxford Street	66.9	67.0	0.1	No
Shattuck Avenue	North of University Avenue		68.4	68.4	0.0	No
Shattuck Avenue	University Avenue	Addison Street	69.4	69.5	0.1	No

Roadway	From	To	Cumulative Conditions Noise Levels L_{dn} (dBA) at 50 feet	Cumulative + Project Conditions Noise Levels L_{dn} (dBA) at 50 feet	Predicted Change (dBA)	Cumulatively Considerable Increase?
Shattuck Avenue	South of Addison Street		70.1	70.1	0.0	No
Oxford Street	North of University Avenue		67.7	67.7	0.0	No
Oxford Street	University Avenue	Addison Street	60.9	61.0	0.1	No
Oxford Street	South of Addison Street		65.9	66.0	0.1	No
Addison Street	Shattuck Avenue	Oxford Street	57.3	57.6	0.2	No

Notes: dBA = A-weighted decibels; L_{dn} = day-night sound level.

Source: Modeled by Ascent in 2024 using traffic volumes provided by Kittelson & Associates, Inc.

As shown in Table 4-2, under cumulative plus project conditions the project would result in traffic noise level increases of approximately 0.2 dBA L_{dn} or less along affected roadway segments. The Addison Street roadway segment would experience the loudest noise increase (i.e., 0.2 dBA L_{dn}). Cumulative noise levels along this roadway segment are predicted to be below 60 dBA L_{dn}, and thus a noise increase of 5 dBA L_{dn} would be considered significant. However, traffic noise increases along this roadway segment, and all roadway segments would be less than 0.2 dBA L_{dn} and therefore, would not result in a perceptible noise increase (i.e., +3 dBA). Therefore, the project's contribution to cumulative impacts related to operational traffic noise would be less than significant.

As previously mentioned, there are six proposed projects located within 500 feet of the project site. New stationary sources associated with the project in combination with past, present, and reasonably foreseeable future projects would have the potential to contribute to cumulative increases in operational noise. As discussed in Impact 3.11, implementing Mitigation Measures 3.11-4a and 3.11-4b would reduce project noise levels from on-site operational noise sources. Although operational noise associated with the project could exceed the City's daytime threshold, stationary noise sources are generally limited to the vicinity of individual project sites and would not combine with other stationary equipment in the overall area to result in a cumulative effect. Additionally, anticipated development in the vicinity of the project site, as listed in Table 4-1, would be subject to individual environmental analysis and mitigation of impacts and would be required to comply with state, local, and/or UC Berkeley requirements related to operational noise. Therefore, the cumulative noise impacts related to long-term operational activities would not be significant, and the project would not contribute substantially to a cumulative impact related to stationary noise. The cumulative impact would be less than significant.

SUMMARY

Based on the discussion above, the project would not result in a considerable contribution such that a new significant cumulative noise or vibration impact would occur. Cumulative impacts with respect to noise and vibration would be **less than significant**.

4.4.12 Population, Employment, and Housing

The cumulative context for population, employment, and housing impact assessment is the San Francisco Bay Area region. The project would result in significant cumulative population, employment, and housing impacts if it, in combination with cumulative projects and development under the 2021 LRDP, would induce substantial unplanned population growth or displace substantial numbers of existing people or housing.

Cumulative projects and development under the 2021 LRDP would be required to undergo various levels of City of Berkeley and/or UC Berkeley review to determine whether population and housing growth would be within the projections of regional, local, and/or UC Berkeley plans. The cumulative projects listed in Table 4-1, as well as the project, are mostly infill development projects anticipated to accommodate existing housing needs and population growth projections for the University and within the City of Berkeley. Future development under the 2021 LRDP would be evaluated on a project-by-project basis to ensure the no significant impacts related to population and housing would occur. Therefore, the cumulative projects would not be expected to result in significant population and housing impacts. As analyzed in Section 3.12, "Population, Employment, and Housing," the project would not include development of housing or the extension of roads or other infrastructure that would indirectly induce population growth. The project would result in a net increase of up to 1,074 new employment opportunities. The anticipated new employment opportunities are within the projections identified in the 2021 LRDP and Plan Bay Area 2050. The project site does not contain existing housing units; therefore, implementation of the project would not displace existing people or homes. Therefore, the project would not result in significant impacts to population and housing. Accordingly, the project in combination with other cumulative projects would not result in a significant cumulative impact, and the project would not contribute considerably to a cumulative impact related to population and housing. The cumulative impact would be **less than significant**.

4.4.13 Public Services and Recreation

The cumulative context for public services and recreation impact assessment is the City of Berkeley, UC Berkeley, and surrounding areas. In general, impacts on public services and recreation are related to increases in population. As the population in an area increases, so, too, does demand for particular facilities and services.

FIRE PROTECTION

According to the State CEQA Guidelines, CEQA is not concerned with public safety response levels themselves, but with the physical impacts to the environment that are caused from potential construction or modification of facilities to maintain the public safety response levels. Implementation of the cumulative projects would result in housing development that would increase population in the City. The anticipated population increase could contribute to an increased cumulative demand for fire protection services, which could result in the need for expanded fire protection facilities. Therefore, a cumulative impact related to fire protection services could occur as a result of the cumulative development. As discussed in Impact 3.13-1 in Section 3.13, "Public Services and Recreation," implementation of the project would result in less-than-significant impacts to fire protection services with implementation of CBP PS-2. CBP PS-2 requires coordination among the various fire prevention resources within the project vicinity, as coordinated efforts increase resources available from multiple sources instead of only relying on one. While a cumulative impact on fire protection services may occur as a result of the cumulative projects, the project's impact on fire protection services would be less than significant, and the project would not have a considerable contribution to an adverse cumulative condition with respect to fire protection services. The cumulative impact would be less than significant.

POLICE

Cumulative projects within UC Berkeley campus, including the project, would be primarily served by the University of California Police Department (UCPD). Cumulative projects listed in Table 4-1 include residential development in the City of Berkeley that would create housing opportunities and would result in population growth and therefore contribute to an increased cumulative demand for police protection from Berkeley Police Department (BPD). Increased demand for police protection could result in the need for expanded police protection facilities. Therefore, a cumulative impact related to police protection services could occur as a result of the cumulative development. As discussed in Impact 3.13-2 in Section 3.13, the project would be mainly served by UCPD and UCPD has confirmed that the project would not trigger the need for new facilities. In addition, the project would implement CBP PS-1, which would minimize potential impacts to police services through coordination between UCPD and BPD. While a cumulative impact on police protection services may occur as a result of the cumulative projects, the project's impact on police protection services would be less than significant, and the project would not have a considerable contribution to an adverse cumulative condition with respect to police protection services. The cumulative impact would be less than significant.

SCHOOLS

Cumulative projects identified in Table 4-1 would have the potential to generate school-aged children that could attend schools in the Berkeley Unified School District. Additional enrollment could result in the need for the construction of new or expanded public schools and facilities, which could cause environmental impacts. While cumulative impact related to schools could occur as a result of the cumulative project, the project would result in less-than-significant impacts to schools in that it would not require the need for new or physically altered schools or associated facilities (Impact 3.13-3). As such, the project would not have a considerable contribution to an adverse cumulative condition with respect to schools. Therefore, the cumulative impact would be less than significant.

LIBRARIES

Implementation of the cumulative projects in the City of Berkeley would have the potential to result in cumulative demands for library services, which could result in the need for new or physically altered library facilities, the construction of which could cause significant environmental impacts. While cumulative impact related to library services could occur as a result of the cumulative projects, as discussed in Impact 3.13-4, the project would not necessitate the Berkeley Public Library establishing new or altering existing library facilities to accommodate demand or otherwise fulfill performance objectives. In addition, with the number UC Berkeley libraries and volumes within them available, UC Berkeley would provide sufficient library services for future employees resulting from the project. Therefore, the project would not represent a considerable contribution to cumulative demands for library services or facilities. The cumulative impact would be less than significant.

PARKS AND RECREATION

Cumulative projects would include housing development that have the potential to increase demand for parks and recreational facilities in the City of Berkeley. The increased demand for parks and recreational facilities could result in the need for the expansion of existing or construction of new facilities, which could cause environmental impacts. However, cumulative projects in the City would be required to comply with City of Berkeley policies, as well as pay fees to mitigate for increased park demands in accordance with the Quimby Act (California Government Code Section 66477), to reduce impacts to parks and recreation. However, without the specific details on the cumulative projects (e.g., timing of implementation), it is not certain the potential impacts to parks and recreation would be reduced to a less-than-significant level. Therefore, a cumulative impact related to parks and recreation could occur as a result of the cumulative projects. As discussed in Impacts 3.13-5 to 3.13-7, the project would not result in substantial adverse physical impacts associated with the construction or expansion of parks facilities, nor would it 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. That is because the project's demand for park and recreational facilities would largely be absorbed by existing UC Berkeley parks and recreational facilities. Therefore, the project would not represent a considerable contribution to cumulative demands for parks and recreational facilities. The cumulative impact would be less than significant.

SUMMARY

Based on the discussion above, the project would not result in a considerable contribution such that a new significant cumulative public services or recreation impact would occur. The cumulative impact would be **less than significant**.

4.4.14 Transportation

The cumulative context for the assessment of transportation is the City of Berkeley and UC Berkeley campus, inclusive of the cumulative projects identified in Table 4-1 and development under the 2021 LRDP.

Under cumulative conditions, traffic from people walking, bicycling, and driving on the surrounding street network would increase as a result of the project, other development projects in the vicinity, and background growth elsewhere in the City of Berkeley. This would generally lead to an increase in the potential for conflicts between people driving and people walking, bicycling, and public transit operations. However, as with the project, other cumulative projects would be required to comply with applicable plans, policies, and programs. Cumulative projects would be required to undergo various levels of City and/or UC Berkeley review to ensure that proposed pedestrian access, vehicular access, and streetscape modifications follow appropriate design guidelines, and are constructed consistent with applicable standards. Similarly, any changes to the street network would be designed to meet City and California Manual of Uniform Traffic Control Devices, California Department of Transportation, and Federal Highway Administration recommendations and standards, as appropriate.

In addition, cumulative projects would promote accessibility for pedestrians and bicyclists to and from the project sites by conforming to policies and zoning regulations, and by adhering to planning principles that emphasize providing convenient connections and safe routes for people walking, bicycling, driving, and taking transit. Implementation of the project in combination with past, present, and reasonably foreseeable projects, would not result in activities or transportation network changes that would conflict with applicable plans and policies, result in traffic hazards, or result in inadequate emergency access.

As described in Section 3.14, "Transportation," the project would not conflict with a program, plan, ordinance, or policy addressing the circulation systems, would not substantially increase hazards due to a geometric design features or incompatible uses, and would not result in inadequate emergency access. The project would implement CBPs TRAN-1, and TRAN-4 through TRAN-7 to address access, vehicle circulation, and traffic safety impacts and to encourage public transit use. The project would also require the preparation of the Construction Traffic Management Plan (see Impact 3.14-1). Per these CBPs, the Construction Traffic Management Plans for these projects would account for potential overlap and associated conflicts with circulation patterns on surrounding roadways. As discussed in Impact 3.14-2, the project has been screened out from having to conduct a detailed vehicle miles traveled (VMT) analysis given its type and location. Therefore, while the cumulative project may contribute to a cumulative VMT impact, the project would not make a considerable contribution to a cumulative impact.

For these reasons, the project together with the cumulative projects would not result in a substantial incremental effect that would result in a significant cumulative impact related to transportation. While a cumulative impact related to VMT could occur, the project site meets the proximity to major transit stop screening criteria, indicating the project would not cause substantial additional VMT. The project would not have a considerable contribution to the cumulative VMT impact. The cumulative impact would be **less than significant**.

4.4.15 Utilities and Service Systems

WATER SUPPLY AND INFRASTRUCTURE

The cumulative context for impacts assessment related to water supply and infrastructure is the East Bay Municipal Utility District (EBMUD) service area, which encompasses 332 square miles within parts of Alameda and Contra Costa counties. The cumulative projects listed in Table 4-1 and development under the 2021 LRDP would receive water from EBMUD's water supply system.

Cumulative projects would be required to comply with applicable regulations, plans, and policies that pertain to water conservation, including the California Green Building Standards Code, California Plumbing Code, and the State of California's Model Water Efficient Landscape Ordinance. Projects undertaken by UC Berkeley, including development under the 2021 LRDP, would also be required to implement water conservation practices in accordance with the UC Sustainability Practices Policy and UC Berkeley Resilient Water Plan and incorporate the CBPs identified in Section 3.16 to reduce water demand. For example, UC Berkeley would be required to implement indoor and outdoor water conservation measures and coordinate with EBMUD to explore suitable uses of recycled water in serving future development. As discussed in Section 3.16, the project would be subject to the same regulations, plans, and policies.

The project's impact on water supply and infrastructure, described in Section 3.16, "Utilities and Service Systems," is cumulative in nature because the analysis evaluates whether EBMUD has sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. As discussed in Section 3.16, EBMUD's Urban Water Management Plan (UWMP) includes projections of water supply and demand within its service area through 2050. These projections account for the campus population growth anticipated at UC Berkeley. EBMUD's UWMP indicates that EBMUD can meet customer demand through 2050 during normal years and single dry years; however, during multi-year droughts, even with customer demand measures in place, EBMUD will need to obtain supplemental supplies to meet customer demand. Therefore, EBMUD is exploring projects and partnerships with other agencies to supplement water supplies to meet long-term demand. The acquisition of supplemental water supplies would ensure that EBMUD would have sufficient water supplies to meet customer demand during multi-year droughts.

Because EBMUD would acquire supplemental water supplies to meet long-term demand and because future projects within the cumulative setting would implement water conservation measures and explore opportunities for recycled water use, sufficient water supplies would be available to serve the project in combination with other projects, and a cumulative significant impact would not occur. The cumulative impact would be less than significant.

WASTEWATER TREATMENT CAPACITY

The cumulative context for impacts assessment related to wastewater is the EBMUD service area for wastewater treatment. The cumulative projects and some of the anticipated development under the 2021 LRDP would contribute flows to EBMUD's collection system and Main Wastewater Treatment Plant (MWWTP).

Cumulative projects that would contribute wastewater flows to EBMUD's collection system and MWWTP would be required to pay wastewater collection fees to EBMUD in conformance with Section 54999 of the California Government Code. These fees would be used by EBMUD to continually upgrade components of its wastewater collection and transmission system through capital improvement programs. EBMUD would be responsible for evaluating the environmental effects of any new or expanded infrastructure within its service area at the time such improvements are proposed. Furthermore, future projects would be required to implement water conservation measures, as described in the "Water Supply and Infrastructure" section, above, which would reduce wastewater generation. As discussed in Section 3.16, the project would be subject to the same requirements.

The project's impact on wastewater treatment capacity, described in Section 3.16, "Utilities and Service Systems," is cumulative in nature because EBMUD's MWWTP collects wastewater from an 83-square-mile service area that encompasses the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont, and Stege Sanitary District, which includes El Cerrito, Kensington, and part of Richmond. As discussed in Section 3.16, EBMUD's MWWTP has adequate dry weather capacity to accommodate existing wastewater flows but identified existing capacity issues during wet weather flows.

Because future projects would be required to implement water conservation measures and pay fees toward wastewater collection and transmission system upgrades, EBMUD would have adequate capacity to treat wastewater flows from the project and other reasonably foreseeable future development, and a cumulative significant impact would not occur. The cumulative impact would be less than significant.

ELECTRICITY INFRASTRUCTURE

The cumulative context for impacts assessment related to electricity infrastructure is the PG&E service area. The cumulative projects listed in Table 4-1 and some of the anticipated development under the 2021 LRDP would receive electricity service from PG&E.

Cumulative projects would result in an increase in electricity demand within the PG&E service area. Future projects would be required to comply with applicable regulations, plans, and policies that pertain to energy efficiency, including the state Building Energy Efficiency Standards and Energy Efficiency Strategic Plan. Projects undertaken by UC Berkeley would also be required to implement energy efficiency requirements in accordance with the state Green

Building Initiative, UC Sustainability Practices Policy, and UC Berkeley Campus Design Standards. As discussed in Section 3.16, the project would be subject to the same requirements. As new development occurs, PG&E would periodically consider the need to purchase more resources and upgrade and expand existing infrastructure, at which time PG&E would be responsible for evaluating the environmental effects of any proposed infrastructure.

Based on the above discussion, the project would not, in combination with other projects, result in significant environmental effects from the construction of electricity infrastructure and a cumulative significant impact would not occur. The cumulative impact would be less than significant.

TELECOMMUNICATIONS INFRASTRUCTURE

The cumulative context for impacts assessment related to telecommunications infrastructure is UC Berkeley and the service areas for other utility providers in the area, including AT&T, Comcast and Sonic. The project, in combination with cumulative projects listed in Table 4-1 and development under the 2021 LRDP, would result in increased demands for communications and data services on existing networks. As new development occurs, telecommunications providers would periodically consider the need to purchase more resources and upgrade and expand existing infrastructure, at which time the providers would be responsible for evaluating the environmental effects of any proposed infrastructure. The project would not, in combination with other projects, result in significant environmental effects from the construction of telecommunications infrastructure and a cumulative significant impact would not occur. The cumulative impact would be less than significant.

SOLID WASTE

The cumulative context for impacts assessment related to solid waste is landfills that serve the East Bay, which consists primarily of Contra Costa County and Alameda County. The cumulative projects listed in Table 4-1 and some of the anticipated development under the 2021 LRDP would generate solid waste sent to East Bay landfills, such as Keller Canyon Landfill.

The project's impact on solid waste facilities is cumulative in nature because East Bay landfills receive solid waste from various jurisdictions within the East Bay. As discussed under Impact 3.15-6 in Section 3.16, "Utilities and Service Systems," the Keller Canyon Landfill had a remaining capacity of 63,408,410 cubic yards in November 2004 and a permitted throughput of 3,500 tons per day, resulting in an estimated remaining capacity of approximately 45,165,710 cubic yards by November 2024. Therefore, the landfill would have sufficient capacity to accommodate approximately 48,006 cubic yards of soil and 16,360 cubic yards of construction debris solid waste generated from project-related construction activities.

Cumulative projects would result in an increase in solid waste sent to East Bay landfills, such as Keller Canyon Landfill. These projects would be required to comply with applicable regulations, plans, and policies that pertain to reducing solid waste generation, including California's Integrated Waste Management Act, California Green Building Standards Code, Assembly Bills 341 and 1826 (mandatory commercial Recycling and organics recycling), and Senate Bill 1374 (construction and demolition waste diversion). Projects undertaken by UC Berkeley, including development under the 2021 LRDP, would also be required to implement waste reduction requirements in accordance with UC Sustainability Practices Policy and UC Berkeley's Zero Waste Plan. UC Berkeley's contribution to landfill volumes is anticipated to substantially decrease over time as the campus implements measures to achieve zero waste. As discussed in Section 3.16, the project would be subject to the same requirements. Based on the above discussion, the project would not, in combination with other projects, generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure and would not impair the attainment of solid waste reduction goals or requirements, and a cumulative significant impact would not occur. The cumulative impact would be less than significant.

SUMMARY

Based on the discussion above, the project would not result in a considerable contribution such that a new significant cumulative impact to utilities and service systems would occur. The cumulative impact would be **less than significant**.

4.4.16 Wildfire

The cumulative context for wildfire impacts assessment would include development proposed in the 2021 LRDP and development in the City of Berkeley that are within or near lands in the State Responsibility Area (SRA) or in a Very High Fire Hazard Severity Zone (FHSZ). The cumulative projects listed in Table 4-1 and development under the 2021 LRDP could occur in or near the SRA or in the Very High FHSZ that would have the potential to contribute to cumulative wildfire risks. Cumulative projects would include projects that would result in residential development and could require the installation or maintenance of utilities infrastructure or activities that may exacerbate fire risk. Implementation of cumulative projects would have the potential to result in significant environmental impacts and they could also potentially expose project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors; or require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, postfire slope instability, or drainage changes. These would result in a significant cumulative impact related to wildlife.

Although the project is near lands classified as Very High FHSZ, the project site is in an urbanized areas surrounded by existing development, as described in Impacts 3.16-1 through 3.16-4, and implementation of the project would not substantially impair an emergency response or evacuation plan, would not result in significant impacts related to exacerbating wildfire risks; and would not expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. Therefore, the project's contribution to significant wildfire impacts would not be cumulatively considerable. The cumulative wildfire impact would be **less than significant**.

5 OTHER CEQA CONSIDERATIONS

Section 15126 of the State CEQA Guidelines requires that all aspects of a project be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify (1) significant environmental impacts that cannot be avoided if the project is implemented, (2) significant irreversible environmental changes that would result from implementation of the project, and (3) growth-inducing effects of the project. Although growth inducement itself is not considered an environmental effect, it could potentially lead to foreseeable physical environmental effects, which are discussed under Section 5.3, "Growth-Inducing Effects," below.

5.1 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Public Resources Code (PRC) Section 21100(b)(2)(A) directs that an EIR shall include a detailed statement setting forth "in a separate section: any significant effect on the environment that cannot be avoided if the project is implemented." As documented throughout the individual project impact sections of Chapter 3 of this EIR and in Chapter 4, "Cumulative Impacts," most of the impacts associated with the project would be less than significant without mitigation or impacts would be reduced to a less-than-significant level after implementation of the recommended mitigation measures. The following impacts are considered significant and unavoidable; that is, no feasible mitigation is available to reduce the project's impacts to a less-than-significant level:

- archaeological, historical, and tribal cultural resources (one significant and unavoidable impact related to causing an adverse change in the significance of historical resources) and
- noise and vibration (two significant and unavoidable impacts related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources).

Cumulative impacts related to causing an adverse change in the significance of historic resources would also be significant and unavoidable (cumulatively considerable) as a result of implementation of the project.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(d) of the State CEQA Guidelines requires a discussion of any significant irreversible environmental changes that would be caused by the project. Section 15126.2(d) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, because a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if:

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

With respect to the potential of the project to commit future generations to similar uses, the project site has been planned for academic life and parking uses in the 2021 Long Range Development Plan (LRDP). UC Berkeley's ownership and existing use of the larger UC Berkeley campus as a whole represents a long-term commitment to institutional uses. As discussed in Section 3.10, "Land Use and Planning," the project would be consistent with the campuswide land use objectives established in the 2021 LRDP. The project would involve construction and operation of two laboratory buildings that also contain academic and administrative space and a parking garage on UC Berkeley property in support of the goals identified in the 2021 LRDP. The project would not introduce a new use beyond what was planned in the 2021 LRDP to create a land use conflict.

Construction of the project would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels such as diesel fuel, fuel oil, and gasoline for automobiles and construction equipment. However, construction activities would be temporary and would not result in permanent consumption of these nonrenewable energy resources. Resources that would be permanently and continually consumed during project operation include water, electricity, and gasoline for automobiles. The quantity and rate of consumption of these resources would be reduced through continued and expanded implementation of the UC Sustainable Practices Policy (as described in Section 3.5, "Energy," and Section 3.7, "Greenhouse Gas Emissions and Climate Change"). In addition, the project would include several sustainable project features, including using native and/or adaptive and drought-resistant landscaping to reduce water usage and achieving LEED-certified Gold to ensure buildings use less energy than conventional buildings. The project would be all-electric and would be supplied by 100 percent carbon-free electricity. Accordingly, implementation of the project would not result in significant environmental impacts related to the unnecessary, inefficient, or wasteful use of resources.

5.3 GROWTH-INDUCING EFFECTS

CEQA specifies that growth-inducing effects of a project must be addressed in an EIR (Public Resources Code Section 21100[b][5]). Specifically, the State CEQA Guidelines (Section 15126.2[e]) state that the EIR shall discuss the ways in which the project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this analysis are projects that would remove obstacles to population growth (e.g., a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, the EIR should discuss the characteristics of the project which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involved the construction of new housing. Indirect growth inducement would result, for instance, if implementing a project would result in:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether a project would foster additional growth. Therefore, for purposes of this EIR, to reach the conclusion that a project is growth-inducing as defined by CEQA, the EIR must find that the project would foster (i.e., promote or encourage) growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not determine whether induced growth is beneficial or detrimental, consistent with CEQA.

Environmental effects resulting from induced growth are defined in State CEQA Guidelines Section 15358(a)(2), in its definition of indirect effects. These indirect or secondary effects of growth may result in significant environmental impacts. The State CEQA Guidelines do not require that an EIR speculate about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but the State CEQA Guidelines do require a good-faith effort to disclose what is feasible to assess. Potential secondary effects of growth could include consequences such as increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat that are the result of growth fostered by the project. The following discussion analyzes potential growth-inducing impacts that might occur during implementation of the project in the following areas:

- population growth,
- indirect effects resulting in the construction of new housing,
- economic growth, and
- removal of obstacles to growth by expanding public facilities or infrastructure capacity.

Implementation of the project would not result in an increase in the UC Berkeley student population but would result in up to 1,074 net new employment opportunities. This is a very conservative estimate for the purposes of this Draft EIR because it assumes that all future employees working in the new buildings would be new when it is likely that many will be existing UC or UC-affiliated employees that will relocate to the new buildings from other nearby UC buildings rather than be entirely new employees. As discussed in Section 3.13, "Population, Employment, and Housing," the addition of up to 1,074 new employment opportunities is within the UC Berkeley's 2021 LRDP projection and Plan Bay Area 2050's projection of employment growth. The environmental impacts of the project's incremental growth are analyzed and addressed, both individually and cumulatively, in the relevant sections of this EIR.

It is anticipated that most of the 1,074 new employee positions would be filled by persons who already reside in the San Francisco Bay Area and existing employees currently working on the UC Berkeley campus. However, it is possible that some of these jobs would be filled by people moving into the City of Berkeley and surrounding cities, which would lead to an increase in the demand for housing. As discussed in Section 3.13, "Population, Employment, and Housing," there were approximately 5,090 and 32,934 vacant housing units in the City of Berkeley and Alameda County in 2023, respectively. Given that only a small number of the project employees are likely to relocate to Berkeley or adjacent cities, it is reasonable to assume that the existing vacant housing units in the City of Berkeley and Alameda County could accommodate the potential housing needs of the new employees choosing to relocate to be closer to the project site. Therefore, it is not anticipated that the project would result in the indirect displacement of the existing population or the need for additional housing.

The jobs anticipated with project implementation may induce economic growth through an increased demand for goods and services, which could, in turn, create additional jobs in the City of Berkeley. This indirect economic growth may result in the growth of commercial development within the region, which would be subject to local and regional planning and discretionary action, such of the City of Berkeley and Alameda County. The potential environmental impacts associated with such development would be identified, in accordance with CEQA requirements, and evaluated through local jurisdictions' general plans and project-level evaluations of commercial development proposals. In addition, the project would occur in an urban setting that is already supplied with the necessary goods and services. The effects related to indirect economic growth induced by the project would be minor.

Growth in the area may also result from the removal of physical impediments or restrictions to growth, as well as the removal of planning impediments resulting from land use plans and policies. In this context, physical growth impediments may include nonexistent or inadequate access to an area, or the lack of essential public services (e.g., water, sewer), while planning impediments may include restrictive zoning and/or land use designations. The project would be located in Downtown Berkeley, which contains established land uses and supporting infrastructure (water, sewer, drainage, energy distribution). As discussed in Section 3.13, "Public Services and Recreation," the project would not require construction of new public facilities. As analyzed in Section 3.15, "Utilities and Service Systems," the project would require connections to existing utilities infrastructure (e.g., water main, sewer main, and electrical lines). However, the project would not require capacity upgrades to the existing utilities infrastructure that could facilitate new or unplanned population growth. Therefore, the project would not remove obstacles to growth in population through expanding public facilities or infrastructure capacity; the project would not result in growth beyond what was already anticipated to occur in the 2021 LRDP.

In summary, the development of the project would foster employee population growth consistent with UC Berkeley and regional employment growth projections. As discussed above, employment growth may induce some economic growth, especially related to the development of commercial space. However, this growth would not exceed growth projections for UC Berkeley and the region. Therefore, the project does not have the potential to induce, or contribute to, a significant growth-inducing impact related to population growth, the construction of new housing in the surrounding environment, fostering economic growth, or removing obstacles to growth by expanding facility capacity or infrastructure.

6 ALTERNATIVES

6.1 CEQA REQUIREMENTS FOR ALTERNATIVES

State CEQA Guidelines Section 15126.6(a) requires EIRs to describe:

> a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (State CEQA Guidelines Section 15126.6[d]).

State CEQA Guidelines Section 15126.6(e) further requires that the "no project" alternative be considered in an EIR. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the project with the impacts of not approving the project. If the no project alternative is the environmentally superior alternative, CEQA Guidelines Section 15126(e)(2) requires that the EIR "shall also identify an environmentally superior alternative among the other alternatives."

In defining "feasibility" (e.g., "…feasibly attain most of the basic objectives of the project…"), State CEQA Guidelines Section 15126.6(f)(1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives to consider in this EIR, the University considered the project objectives, the project's significant effects, unique project considerations, and the sites identified for development in the 2021 Long Range Development Plan (LRDP), among others. These factors are crucial to the development of alternatives that meet the criteria specified in State CEQA Guidelines Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body, here the Regents (see PRC Sections 21081.5 and 21081[a][3]).

6.1.1 Summary of Alternatives Screening Criteria

In compliance with State CEQA Guidelines Section 15126.6, as described above, each alternative is evaluated in the following three ways:

- Does the alternative **attain most of the basic project objectives** (analyzed below relative to each alternative)? As identified in Section 2.5, "Project Objectives," the objectives of the project are to achieve the following:
  - Address critical programmatic needs:
    - Provide at least 450,000 gross square feet of modern and flexible life-science research and wet laboratory space to support UC Berkeley's academic mission, to expand its research enterprise, and to accelerate cutting-edge discovery and innovation in life sciences and climate research.
    - Create a multi-user site that allows for co-locating of UC Berkeley's life sciences and climate research programs in a manner that enables intellectual exchange, interdisciplinary discovery, and interaction and collaboration between academic programs and disciplines and that encourages collaboration in support of the University's public-service values and for positive societal impact.
    - Provide academic and research facilities in the City Environs adjacent to the Campus Park that can benefit from Downtown Berkeley amenities and proximity to other nearby UC research buildings, while still being accessible to academic and research functions on the Campus Park.
    - Create a new public-facing node for life sciences development that complements other life-science research hubs in the City of Berkeley and the East Bay by locating collaborative academic research space along University Avenue and Oxford Street, near the Campus Park and UC Berkeley's Innovative Genomics Institute Building, and with multiple and convenient transport options to other life-science hubs throughout Berkeley and the East Bay.
    - Create a mobility hub, including parking, to support the users of the site and that is integrated with the other multi-modal transportation systems in Downtown Berkeley and the UC Berkeley campus.
  - Optimize campus land resources:
    - Provide a laboratory building located in the northern half of the site that is rectangular in dimension to enable efficient and flexible floor plates that will accommodate multiple users with a range of programmatic requirements, as well as adequate space for at grade vehicles, including a multi-bay loading dock with service access that accommodates large box trucks and parking for building occupants.
    - Balance UC Berkeley's need for modern academic and research facilities against preservation of the campus's extensive portfolio of notable historic landscapes and architecture by prioritizing the stewardship of, and allocation of public funds to, historic resources located on the Campus Park.
    - Provide a development envelope that maximizes site capacity, allows for signature buildings at a key campus gateway, and responds to the surrounding development context.
    - Develop a project in a location that provides site users easy access to existing and proposed multi-modal transportation facilities in Downtown Berkeley, so that they have efficient, sustainable, and safe campus access options.
    - Provide publicly-accessible open space on the site to provide space for informal collaboration between the building occupants and to enhance open space that serves the public to contribute positively to Downtown Berkeley.
    - Provide a project that accelerates revitalization in Downtown Berkeley by bringing additional employees and public services, and by enhancing the look of Downtown through attractive new buildings and landscaping.

- Develop new research space on a UC Regent-owned site that does not reduce the ability for UC Berkeley to provide necessary housing for students, faculty, and staff, and that does not require relocation of existing critical academic functions.
- Site and develop new research and educational buildings at a location that is currently underutilized or otherwise a candidate for demolition. Site new buildings in areas identified as potential future development areas supporting the proposed uses in the 2021 LRDP.

- Modernize campus infrastructure:
    - Provide facilities that meet or exceed the UC Berkeley Sustainability Plan and the UC Sustainable Practices Policy.
    - Address significant seismic, deferred maintenance, and other life-safety code deficiencies in aging buildings by demolishing and replacing them with new state-of-the-art facilities.
    - Upgrade infrastructure surrounding the project site, including ADA access, sidewalks, transit stops, and utilities, in a cost-effective manner.

- Is the alternative **potentially feasible** (from economic, legal, regulatory, and technological standpoints)?
- Does the alternative **avoid or substantially lessen any significant effects of the project** (including consideration of whether the alternative could create significant effects additional to those of the project)? Significant effects are described in Sections 3.1 through 3.16 of this EIR. The project would result in the following significant and unavoidable impacts:
    - archaeological, historical, and tribal cultural resources (one significant and unavoidable impact related to causing an adverse change in the significance of historical resources) and
    - noise and vibration (two significant and unavoidable impacts related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources).

The range of alternatives selected for evaluation in this EIR was also informed by the 2021 LRDP, UC Berkeley's long-term land use plan to guide future development and accommodate projected population growth at UC Berkeley through the 2036-37 academic year. The 2021 LRDP was the product of a multi-year planning process, undertaken by the campus in partnership with a wide variety of internal and external stakeholders. The development program set forth in the 2021 LRDP is distributed across five land use zones—the Campus Park, the Hill Campus West, the Hill Campus East, the Clark Kerr Campus and various properties owned and leased by UC Berkeley within the City Environs land use zone—each of which differs in terms of its existing mix of land uses, character, physical features, development potential, and surrounding context. The 2021 LRDP's Land Use Element then sets forth a series of land use objectives to guide development within each zone, which includes making "the highest and best use of each site to employ limited land use resources most efficiently." Consistent with these objectives, the 2021 LRDP identifies a series of sites for new development, redevelopment, and renovation, intended to accommodate the proposed 2021 LRDP buildout projections. These include 16 sites specifically identified for student housing, as well as multiple other sites identified for academic life (including classrooms, study space, and research space), campus life (including athletics, recreation, and wellness), parking, and open space. To the extent that sites have been identified for certain uses in the 2021 LRDP to meet UC Berkeley's long term planning goals, such sites may not be suitable as alternative sites for the project.

6.1.2 Identification of Alternatives

The alternatives incorporate input provided by agencies, organizations, and individuals during public review of the notice of preparation (NOP). The following organization and individuals submitted comments on the NOP with suggested alternatives or alternative features for consideration in this EIR (see Appendix A for the NOP and comments received).

- Alfred Twu (October 30, 2023): Include a project alternative for taller laboratory buildings to create space for a residential building that can help offset housing demand.

- Berkeley Architecture Heritage Association (November 29, 2023): Consider alternative projects that would retain and restore the entirety or the façades of the two City landmarks.
- Cameron Danesh (November 29, 2023): Identify alternative strategies of adaptive reuse of the historic buildings or construct taller buildings to preserve the façades of the historic buildings.

The Regents reviewed and considered recommendations regarding alternatives provided in response to the NOP. Recommendations that were considered and eliminated from detailed analysis because they do not meet the alternatives screening criteria are described in Section 6.2, "Alternatives Considered and Eliminated from Detailed Analysis." Recommendations that were consistent with the alternatives screening criteria were incorporated into the alternatives evaluated in this EIR; these are described and evaluated in Section 6.3, "Alternatives Evaluated in This EIR."

6.2 ALTERNATIVES CONSIDERED AND ELIMINATED FROM DETAILED ANALYSIS

As described above, State CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for a project shall include those that could feasibly attain most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects of the project. Alternatives that fail to meet most of the basic project objectives need not be addressed in detail in an EIR (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165-1167.)

In determining what alternatives should be considered in an EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and any unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency's decision-making body (see PRC Section 21081[a][3]).

State CEQA Guidelines Section 15126.6(c) requires that an EIR identify any alternatives that were considered by the lead agency, but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination. As discussed in Section 6.1.2, "Identification of Alternatives," three commenters identified potential alternatives to the project in response to the NOP. Comments that suggest alternatives to the project were evaluated against the alternatives screening criteria described in Section 6.1.1, "Summary of Alternatives Screening Criteria." Suggested alternatives that are consistent with the screening criteria are evaluated in Section 6.3, "Alternatives Evaluated in This EIR." Sections 6.2.1 through 6.2.3 below describe the alternatives that were considered by the Regents but are not evaluated further in this EIR and the reasons for eliminating each from detailed analysis in this EIR.

6.2.1 Taller Laboratory Building and Additional Residential Building

In response to comments received on the NOP, as summarized in Section 6.1.2, "Identification of Alternatives," UC Berkeley considered an alternative that would incorporate residential housing into the project. The South Building would be used for residential housing and additional parking instead of research uses. All research and office space proposed under the project would be consolidated into the North Building. To accommodate the necessary research space, the North Building would have a total height of 16 stories, which is 5 stories taller than proposed under the project.

This alternative would meet the project objectives to address critical programmatic needs, optimize campus land resources, and modernize campus infrastructure. Like the project, this alternative would provide the needed 450,000 gross square feet of life-science research and wet laboratory space, create a multi-user site that encourages collaboration for life sciences and climate research, provide academic and research facilities within Downtown Berkeley, and create a mobility hub that is integrated with other multi-modal transportation systems. In addition, this alternative would create modern and flexible buildings for laboratory facilities, maximize site capacity, provide publicly-accessible open space, accelerate revitalization in Downtown Berkeley, allow for the development of research space without reducing UC Berkeley's ability to provide housing or relocating existing academic functions, and redevelop a site that is currently underutilized. Further, this alternative would provide facilities that meet or exceed sustainability goals and policies, address deficiencies in aging buildings, and upgrade infrastructure in a cost-effective manner.

Although this alternative would meet certain basic project objectives, this alternative would be potentially inconsistent with applicable land use plans and policies. UC Berkeley's 2021 LRDP, which is the primary planning document for the UC Berkeley campus, envisions redevelopment of the project site with academic life uses and parking, at a maximum building height of 15 stories (UC Berkeley 2021). The 2021 LRDP does not envision housing development at this site. Further, this alternative would not avoid or substantially lessen the project's significant effects. As discussed in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," the Ernest A. Heron Building and Martha E. Sell Building are historical resources under CEQA and contributors to the Shattuck Avenue Downtown Historic District. Like the project, this alternative would require demolition of the two City-designated landmark buildings and alteration of the historic district. Therefore, this alternative would not avoid the significant and unavoidable impact of the project on historical resources.

In addition, this alternative would involve similar temporary construction activities and loading dock activities as the project that would increase noise levels in exceedance of applicable standards. Therefore, this alternative would not avoid the two significant and unavoidable impacts of the project related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources. This alternative would also increase the density of development on the project site, which would have potential to result in greater environmental impacts than the project. For example, the project would require construction of taller and larger buildings that could increase the duration and intensity of construction activities. These construction activities would contribute to greater increases in temporary construction-related vehicle trips and air pollutant and greenhouse gas (GHG) emissions. Long-term increases in vehicle trips and air pollutant and GHG emissions would also result from the increased population density relative to the project. In addition, the North Building would be taller than the other buildings in the project vicinity and would potentially have greater impacts related to aesthetics, bird movement and migration, and wind hazards relative to the project.

In addition, this alternative would not be feasible from an economic standpoint. This alternative would increase the costs that UC Berkeley would incur to accommodate the increased intensity of development on the project site. A donor has committed to designing and constructing the South Building and subsequently making a gift of the project to UC Berkeley. The donor has pledged gift funds to specifically construct a laboratory building focusing on climate research programs and would not provide a gift to UC Berkeley to construct a South Building for residential housing and parking uses; therefore, the project would not be realized under this alternative. Based on the discussion above, this alternative would meet certain basic project objectives, but would not be feasible and would not avoid or substantially lessen any significant effects of the project. Therefore, this alternative was dismissed from further consideration.

6.2.2 Relocation of Historic Buildings

In response to comments received on the NOP, as summarized in Section 6.1.2, "Identification of Alternatives," UC Berkeley considered an alternative that would relocate the two City-designated landmark buildings, the Ernest A. Heron Building and Martha E. Sell Building, rather than demolishing them. Following the relocation of the structures, the project site would be developed with the same laboratory buildings, landscaped courtyard, parking garage, supporting utilities, and circulation improvements described for the project in Section 2.6, "Project Elements."

This alternative would meet the basic project objectives to address critical programmatic needs, optimize campus land resources, and modernize campus infrastructure. Like the project, this alternative would provide the needed 450,000 gross square feet of life-science research and wet laboratory space, create a multi-user site that encourages collaboration for life sciences and climate research programs, provide academic and research facilities within Downtown Berkeley, and create a mobility hub that is integrated with other multi-modal transportation systems. In addition, this alternative would create modern and flexible buildings for laboratory facilities, maximize site capacity, provide publicly-accessible open space, accelerate revitalization in Downtown Berkeley, allow for the development of research space without reducing UC Berkeley's ability to provide housing or relocating existing academic functions, and redevelop a site that is currently underutilized. Further, this alternative would provide facilities that meet or exceed sustainability goals and policies, address deficiencies in aging buildings, and upgrade infrastructure in a cost-effective manner.

Although this alternative would meet several basic project objectives, it would not achieve the objective related to optimizing use of the site and balancing UC Berkeley programming needs for modern academic and research facilities to the extent of the project. Further, UC Berkeley does not own any parcels that could readily accommodate the relocated historic buildings. During preparation of the 2021 LRDP, UC Berkeley prepared an inventory of potential areas for new campus development and redevelopment. Under this alternative, the relocated buildings would require a site with a minimum lot size of 0.5 acre. There are no vacant or underutilized sites within the City Environs land use zone that are large enough to accommodate the size of the buildings without demolition of existing buildings. The sites that are large enough to accommodate the relocated buildings are developed with existing residential, academic life, campus life, or parking uses. Demolishing existing structures to make space for the relocated historic buildings would result in the displacement of these uses and would result in additional environmental impacts (e.g., demolition-related vehicle trips, air pollutant and GHG emissions, and noise levels) above and beyond what is projected in this EIR and counter to the intent of alternatives under CEQA (i.e., to reduce physical environmental impacts associated with a proposed project).

Further, this alternative would not avoid or substantially lessen the project's significant effects. As discussed in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," the project site includes three historical resources under CEQA; the Ernest A. Heron Building, Martha E. Sell Building, and a portion of the Shattuck Avenue Downtown Historic District. The Heron and Sell buildings are locally significant both individually as well as being considered contributors to the Shattuck Avenue Downtown Historic District. If relocated to another site, the buildings would lose their integrity of location, setting, feeling, and association, which could result in them no longer being individually eligible as historical resources. Relocating the buildings outside of the historic district would also have a significant impact on the Shattuck Avenue Downtown Historic District given the loss of those two buildings as contributors to the district. As with the project, the addition of the South and North Buildings within the historic district would potentially be an intrusion that is incompatible with the historic district, but the construction of the new buildings is considered a less-than-significant impact. As this alternative would still result in the removal of the Heron and Sell buildings from the historic district, it would not avoid the significant and unavoidable impact of the project on historic resources. In addition, this alternative would involve the same temporary construction activities and loading dock activities as the project that would increase noise levels in exceedance of applicable standards. Therefore, this alternative would not avoid the two significant and unavoidable impacts of the project related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources.

Based on the discussion above, this alternative would meet certain but not all basic project objectives, but would not be feasible and would not avoid or substantially lessen any significant effects of the project. Therefore, this alternative was dismissed from further consideration.

6.2.3 Preservation of Historic Building Façade

In response to comments received on the NOP, as summarized in Section 6.1.2, "Identification of Alternatives," UC Berkeley considered an alternative that would preserve the façades of the two City-designated landmark buildings, the Ernest A. Heron Building and Martha E. Sell Building, rather than demolishing them. The project site would be developed with laboratory buildings, a landscaped courtyard, a parking garage, supporting utilities, and circulation improvements similar to what is proposed for the project as described in Section 2.6, "Project Elements." However, the North Building would be redesigned to incorporate the building façade of the existing landmark buildings and be compatible with the existing architectural style of those buildings. The redesign would slightly reduce the space that would be available for research and office uses and require shifting of the proposed parking garage and loading dock entrance eastward toward Oxford Street. This redesign would remove approximately half of the ground floor lobby space.

This alternative would generally meet the basic project objectives to address critical programmatic needs and modernize campus infrastructure. Like the project, this alternative would create a multi-user site that encourages collaboration for life sciences and climate research, provide academic and research facilities within Downtown Berkeley, and create a mobility hub that is integrated with other multi-modal transportation systems. In addition, this alternative would create modern and flexible buildings for laboratory facilities, provide publicly-accessible open space, accelerate revitalization in Downtown Berkeley for a portion of the site, allow for the development of research space without reducing UC Berkeley's ability to provide housing or relocating existing academic functions, and redevelop a portion of the site that is currently underutilized. Further, this alternative would provide facilities that meet or exceed sustainability goals and policies, address deficiencies in aging buildings, and upgrade infrastructure in a cost-effective manner for a portion of the site. Although this alternative would generally meet the basic project objectives, it would not achieve the objective related to optimizing use of the site and balancing UC Berkeley programming needs for modern academic and research facilities to the extent of the project.

Further, this alternative would not avoid or substantially lessen the project's significant effects. As discussed in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," the project site includes three historical resources under CEQA: the Ernest A. Heron Building, Martha E. Sell Building, and a portion of the Shattuck Avenue Downtown Historic District. The Heron and Sell buildings are locally significant both individually as well as for contributing to the Shattuck Avenue Downtown Historic District. These buildings are locally significant based on their architectural and historical significance. Preserving the building façades would retain some of the architectural features of the buildings, but this preservation would not be adequate to retain the significance of these buildings as historical resources. As with the project, the addition of the South and North Buildings within the historic district would potentially be an intrusion that is incompatible with the historic district, but the construction of the new buildings is considered a less-than-significant impact. As this alternative would still result in a substantial adverse change to the Heron and Sell buildings, it would not avoid the significant and unavoidable impact of the project on historical resources. In addition, this alternative would involve the same temporary construction activities and loading dock activities as the project that would increase noise levels in exceedance of applicable standards. Therefore, this alternative would not avoid the two significant and unavoidable impacts of the project related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources.

Based on the discussion above, this alternative would meet the basic project objectives, but would not be feasible and would not avoid or substantially lessen any significant effects of the project. Therefore, this alternative was dismissed from further consideration.

6.3 ALTERNATIVES EVALUATED IN THIS EIR

The following alternatives are evaluated in this EIR.

- **No Project Alternative**,
- **Alternative A: Off-Site Alternative**, and
- **Alternative B: Reduced Footprint Alternative**.

These alternatives are described in detail below. The descriptions focus on the identification of elements that differ from the project. Following the description of each alternative is an evaluation of the degree to which the alternative meets the objectives of the project, and an analysis of the environmental impacts of each alternative. Table 6-1 at the end of Section 6.4 presents a comparison of the environmental effects of each alternative relative to the project; it identifies whether an alternative would avoid any significant and unavoidable impact of the project and presents the degree of environmental effects relative to the project (e.g., similar, less, greater) for each resource area.

6.3.1 No Project Alternative

ALTERNATIVE DESCRIPTION

UC Berkeley evaluated three potential scenarios for the No Project Alternative, taking into account the existing condition of the University Hall structure. As described in Section 2.4.1, "Existing Uses," University Hall was evaluated for seismic performance in 2020 and was determined to have a seismic performance rating of VI, Priority for Improvement (UC Berkeley 2022). Because the building was determined to be seismically unsafe, it was vacated in summer 2023 and is currently boarded and unoccupied. Under each of the three scenarios, the No Project Alternative would not result in the development of two laboratory buildings, a landscaped courtyard, a parking garage, supporting utilities, and circulation improvements described in Section 2.6, "Project Elements." Under the No Project Alternative, the commercial properties—2136-2140 University Avenue (Ernest A. Heron Building) and 2154-2160 University Avenue (Martha E. Sell Building)—would be retained on-site and would continue to operate in a manner similar to existing conditions.

In the first scenario, UC Berkeley would retrofit the existing University Hall to meet seismic standards and current building code requirements so that the building could be reoccupied. UC Berkeley estimates that completing seismic retrofits and repurposing University Hall would cost greater than $75 million. Under the second scenario, UC Berkeley would demolish the existing University Hall, which would cost approximately $30 million, and leave the site vacant until a future use is identified for the site. In the third scenario, UC Berkeley would leave University Hall boarded and secured in its current condition until another viable project is identified and the cost of building demolition would be absorbed as part of that project. UC Berkeley does not have funds allocated to retrofit and repurpose the building (scenario 1) or to demolish the building and leave the site vacant (scenario 2) and determined that these scenarios would be cost prohibitive. Therefore, the most likely foreseeable outcome for the project site under the No Project Alternative would be to keep the existing University Hall boarded and secured in its current condition until a future use is identified (scenario 3). This scenario is assumed in the analysis of the impacts of the No Project Alternative relative to the project. If the project is not approved, the impacts of demolition of the structures on the project site, including University Hall, would be analyzed as part of the environmental review for a future project proposed on the project site.

The 2021 LRDP EIR contemplates redevelopment of University Hall with up to 660,000 square feet of building space for academic life uses, 1,000 parking spaces, and up to 15 stories (UC Berkeley 2021). Therefore, it is reasonable to assume that UC Berkeley would redevelop the site in the foreseeable future.

Consistency with Project Objectives

CEQA requires that an EIR evaluate a no project alternative to allow decisionmakers to compare the impacts of approving the project with the impacts of not approving the project, even if the no project alternative does not meet most of the basic project objectives (State CEQA Guidelines Section 15126[e]).

The No Project Alternative would not meet any of the project objectives to address critical programmatic needs because this alternative would not provide life-science research and wet laboratory space, create a multi-user site that encourages collaboration for life sciences and climate research, provide academic and research facilities within Downtown Berkeley, or create a mobility hub that is integrated with other multi-modal transportation systems. In addition, the No Project Alternative would not meet any of the project objectives to optimize campus land resources because this alternative would not create modern and flexible buildings for laboratory facilities, maximize site capacity, allow for signature buildings at a key campus gateway, provide publicly-accessible open space, accelerate revitalization in Downtown Berkeley, allow for the development of research space without reducing UC Berkeley's ability to provide housing or relocating existing academic functions, or redevelop a site that is currently underutilized. Because the project site would remain vacant and underutilized, UC Berkeley would not meet the project objectives to modernize campus infrastructure, including objectives to provide facilities that meet or exceed sustainability goals and policies, address deficiencies in aging buildings, and upgrade infrastructure in a cost-effective manner.

Feasibility

Under the No Project Alternative, the existing University Hall would continue to be vacant until a suitable future use is identified, and the commercial buildings would continue to operate in a manner similar to existing conditions. Although it would be feasible to maintain the site in its current condition, UC Berkeley would not maximize its current resources, further its programmatic needs, or achieve the economic benefits from redeveloping the underutilized site until a future use is identified.

ENVIRONMENTAL ANALYSIS OF THE NO PROJECT ALTERNATIVE

Aesthetics

Under the No Project Alternative, no demolition of existing structures or development of new structures would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. No changes to the existing uses of the project site would occur and the overall scenic quality of the project site would be maintained in its current condition. Continuation of existing conditions (i.e., maintaining the project site as currently developed), is not considered to be consistent with the current UC Berkeley Campus Design Standards or Physical Design Framework. Nonetheless, because new development would not occur under this alternative, no conflicts with applicable regulations governing scenic quality would occur. In addition, existing light and glare conditions would be consistent with existing conditions. Therefore, the No Project Alternative would avoid impacts related to the creation of new sources of light and glare. Overall, the impact on aesthetics would be less under the No Project Alternative than the project.

Air Quality

Under the No Project Alternative, no demolition of existing structures or development of new structures would occur. University Hall would continue to be vacant, and the existing commercial buildings would continue to operate in a manner similar to existing conditions. Because no construction activities or changes in operational activities would occur, this alternative would not contribute to increases in air pollutant emissions compared to existing conditions. Therefore, the No Project Alternative would avoid the project’s less-than-significant impact related to consistency with the applicable air quality plan, construction and operational criteria air pollutants and ozone precursors, toxic air contaminants, carbon monoxide hot spots, and odorous emissions. Overall, the impact on air quality would be less under the No Project Alternative than the project.

Biological Resources

Under the No Project Alternative, the existing University Hall and existing commercial buildings would remain within the project site. The development of new structures with increased height and mass would not occur. Therefore, the No Project Alternative would avoid the potentially significant but mitigatable impact of the project related to interference with bird migration and movement and increases in the likelihood of bird strikes. Under the No Project Alternative, no removal of landscape trees and no construction activities resulting in increased noise levels would occur. This alternative would not involve activities with the potential to directly harm or interfere with the behavior of nesting birds and migratory birds in and surrounding the project site. Therefore, the No Project Alternative would avoid the project’s less-than-significant impact related to disturbance to nesting native birds and the project’s potentially significant but mitigable impact related to bird strikes. Overall, the impact on biological resources would be less under the No Project Alternative than the project.

Archaeological, Historical, and Tribal Cultural Resources

Under the No Project Alternative, no new development would occur at the project site. The Ernest A. Heron Building and Martha E. Sell Building would not be demolished, and the Shattuck Avenue Downtown Historic District would not be altered. Therefore, the No Project Alternative would avoid the project’s significant and unavoidable impact on historical resources. Because the No Project Alternative would not involve excavation or other ground disturbance, this alternative would not have potential to encounter previously undisturbed archaeological resources, tribal cultural resources, or unknown human remains. Therefore, this alternative would avoid the project’s significant but mitigable impacts on archaeological and tribal cultural resources and less-than-significant impact on human remains. Overall, the impact on archaeological, historical, and tribal cultural resources would be less under the No Project Alternative than the project.

Energy

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. Because no construction activities or changes in operational activities would occur, the No Project Alternative would not contribute to an increase in energy consumption at the project site. Therefore, the No Project Alternative would avoid the project’s less-than-significant impacts related to wasteful, inefficient, or unnecessary consumption of energy resources and conflicts with renewable energy or energy efficiency plans. Overall, the impact on energy would be less under the No Project Alternative than the project.

Geology and Soils

Under the No Project Alternative, no demolition of existing structures would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. Because the No Project Alternative would not involve ground disturbance or the development of new structures, this alternative would not (1) increase the risk of loss, injury, or death related to earthquake fault rupture, strong seismic ground shaking, seismic-related ground failure, and landslides; (2) cause instability of the project site resulting in landslide, lateral spreading, subsidence, liquefaction, or collapse; or (3) create substantial risks to life or property as a result of expansive soils. Because the No Project Alternative would not involve ground disturbance, this alternative would not have potential to result in substantial erosion or disturb paleontological resources. Therefore, this alternative would avoid the project’s less-than-significant impacts related to geology and soils. Overall, the impact on geology and soils would be less under the No Project Alternative than the project.

Greenhouse Gas Emissions and Climate Change

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. Because no construction activities or changes in operational activities would occur, the No Project Alternative would not contribute to an increase in GHG emissions relative to existing conditions. The existing emissions associated with on-site commercial uses at the site would continue. Therefore, the No Project Alternative would avoid the project’s potentially significant but mitigatable impact related to generating GHG emissions and less-than-significant impact related to conflicting with plans, policies, and regulations adopted for the purpose of reducing GHG emissions. Overall, the impact on GHG emissions and climate change would be less under the No Project Alternative than the project.

Hazards and Hazardous Materials

Under the No Project Alternative, no construction activities or changes in existing operational activities would occur at the project site. Therefore, this alternative would not increase the transport, use, or disposal of hazardous materials at the project site; increase the risk of an accidental release of hazardous materials into the environment; or increase emissions of hazardous substances in proximity to schools. Because the No Project Alternative would not involve ground disturbance, this alternative would not result in releases of contamination from hazardous materials sites. Therefore, this alternative would avoid the project’s less-than-significant impact related to creating significant hazards to the public and the environment. The No Project Alternative would not involve construction activities within roadway rights-of-way and would not generate an increase in vehicle trips compared to existing conditions. Therefore, this alternative would avoid the project’s less-than-significant impact related to emergency response and evacuation. Overall, the impact on hazards and hazardous materials would be less under the No Project Alternative than the project.

Hydrology and Water Quality

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. The No Project Alternative would not involve ground disturbance and would preserve existing impervious surfaces and drainage patterns at the project site. Therefore, the No Project Alternative would avoid the project's less-than-significant impact related to violating water quality standards or waste discharge requirements; decreasing groundwater supplies and interfering with groundwater recharge; altering drainage patterns in a manner that results in erosion and siltation, on- or off-site flooding, polluted runoff, or an exceedance of the capacity of stormwater drainage systems; and conflicting with or obstructing implementation of a water quality control plan. Overall, the impact on hydrology and water quality would be less under the No Project Alternative than the project.

Land Use and Planning

The No Project Alternative would maintain the existing uses of the project site. Like the project, the No Project Alternative would have no impact related to dividing an established community. As noted in Section 2.3, "General Plan Land Use and Zoning Designation," the UC Berkeley 2021 LRDP envisions redevelopment of the project site with up to 660,000 square feet of academic life uses, a maximum building height of 15 stories, and up to 1,000 parking spaces (UC Berkeley 2021). Therefore, the No Project Alternative would be inconsistent with UC Berkeley's 2021 LRDP goals and objectives to prioritize use of infill or underdeveloped sites with new facilities to accommodate program needs and provide opportunity for development of new campus buildings that meet UC Berkeley's programmatic objectives. In addition, the No Project Alternative would be inconsistent with the 2021 LRDP campuswide land use objective related to demolishing buildings that require seismic remediation. Under the No Project Alternative, University Hall (determined to be seismically unsafe) would remain intact; therefore, this alternative would conflict with the 2021 LRDP land use objective related to demolishing buildings that require seismic remediation. Because the project that would not conflict with any applicable land use plan or regulation adopted for the purpose of avoiding or mitigating an environmental effect, this alternative would have a greater land use impact than the project. Therefore, this alternative would result in a greater impact on land use and planning compared to the project.

Noise and Vibration

Under the No Project Alternative, no demolition of existing structures or construction activities would occur. Therefore, this alternative would not generate temporary increases in noise levels or groundborne vibration. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. Because the No Project Alternative would not result in the installation of new stationary noise sources, increase traffic volumes and associated traffic noise, or introduce new noise-generating activities, this alternative would not result in permanent increases in noise levels. Therefore, the No Project Alternative would avoid the project's significant and unavoidable impact related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources, significant but mitigable impact related to generating substantial temporary construction vibration levels, and less-than-significant impact related to generating substantial increases in long-term traffic noise levels. Overall, the impact on noise would be less under the No Project Alternative than the project.

Population, Employment, and Housing

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. The No Project Alternative would not increase the employment population of the project site compared to existing conditions because it would not create employment opportunities. Therefore, the No Project Alternative would avoid the project's less-than-significant impact related to inducing substantial unplanned population growth. Overall, the impact on population and housing would be less under the No Project Alternative than the project.

Public Services and Recreation

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. Because the No Project Alternative would not increase the employment population at the project site, this alternative would not increase the demand for public services, including fire and police protection, schools, parks and recreational facilities, and other government facilities. Therefore, the No Project

Alternative would avoid the project's less-than-significant impact related to the environmental effects of constructing new or expanding existing facilities. Overall, the impact on public services would be less under the No Project Alternative than the project.

Transportation

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. The No Project Alternative would not result in any changes to the existing circulation system, involve construction activities within roadway rights-of-way, or generate an increase in vehicle trips compared to existing conditions. Therefore, the No Project Alternative would avoid the project's less-than-significant impact related to conflicts with programs, plans, ordinances, or polices addressing the circulation system; conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b); an increase in hazards due to geometric design features or incompatible uses; and inadequate emergency access. Overall, the impact on transportation would be less under the No Project Alternative than the project.

Utilities and Service Systems

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. These buildings are already served by existing utility infrastructure and no new connections would be established under the No Project Alternative. Therefore, this alternative would avoid the project's less-than-significant impact related to the environmental effects of establishing new connections to existing water supply, sewer, electric, and telecommunications infrastructure. Because the No Project Alternative would not contribute to an increase in employment population at the project site compared to existing conditions, this alternative would not increase the demand for water, wastewater treatment, electricity, telecommunications, and solid waste collection services. Therefore, the No Project Alternative would avoid the project's less-than-significant impact related to the sufficiency of water supplies, capacity of existing wastewater treatment systems, and capacity of solid waste infrastructure. Overall, the impact on utilities and service systems would be less under the No Project Alternative than the project.

Wildfire

Under the No Project Alternative, no demolition of existing structures or development of new buildings would occur. The existing University Hall would continue to be vacant, and the commercial buildings would continue to operate in a manner similar to existing conditions. The No Project Alternative would not involve construction activities within roadway rights-of-way and would not generate an increase in vehicle trips compared to existing conditions. Therefore, the No Project Alternative would avoid the project's less-than-significant impact related to hindering emergency access and evacuation in the event of a wildfire. The No Project Alternative would not result in any changes to existing utility and transportation infrastructure. Therefore, this alternative would avoid the project's less-than-significant impact from the installation of infrastructure that may exacerbate fire risk. Because the No Project Alternative would maintain the existing vegetation, topography, and drainage of the project site, this alternative would avoid the project's less-than-significant impacts of (1) exacerbating wildfire or uncontrolled spread of wildfire and (2) exposing people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes. Overall, the impact on wildfire would be less under the No Project Alternative than the project.

6.3.2 Alternative A: Off-Site Alternative

ALTERNATIVE DESCRIPTION

The Off-Site Alternative would result in the development of two laboratory buildings, a landscaped courtyard, a parking garage, supporting utilities, and circulation improvements at an alternative location to the project site. The following criteria were considered for an off-site location that meets most of the basic objectives of the project and avoids the significant and unavoidable impacts of the project:

- a vacant site to avoid demolition, especially of existing housing;
- a vacant or underutilized site not proposed for housing;
- a site large enough to accommodate the scale of the project (i.e., approximately 1.86 acres);
- a site close to the Campus Park to be part of a research hub that fosters collaboration with existing research facilities (i.e., located in the City Environs land use zone and within 0.25 mile of the Campus Park);
- a site close to transit (i.e., within 0.5 mile of a major transit stop);
- a site that does not contain historical resources; and
- a site within the City of Berkeley's Downtown Mixed-Use Core to avoid incompatibility with nearby residential uses.

During preparation of the 2021 LRDP, UC Berkeley prepared an inventory of potential areas for new development and redevelopment within the City Environs land use zone. The inventory is comprised of parcels owned by UC Berkeley and the City of Berkeley.

UC Berkeley first reviewed the inventory for parcels that are currently vacant and meet all or most of the above screening criteria. The review found that all vacant parcels in the inventory are located outside of the City Environs land use zone and are too small (i.e., less than 1 acre) to accommodate the facilities proposed under the project. In addition, the vacant parcels owned by UC Berkeley have already been identified for other planned uses in UC Berkeley 2021 LRDP. Therefore, no currently vacant parcels in the inventory are available for development of the proposed laboratory facilities.

UC Berkeley then reviewed the inventory for developed sites that meet all or most of the above screening criteria. Of the sites that are large enough to accommodate the proposed facilities, UC Berkeley identified three sites that meet the location criteria (i.e., within the City Environs land use zone, close to the Campus Park, close to transit, and within Downtown Berkeley): 1900 Oxford Street, the Oxford Tract, and 1995 University Avenue. The 1900 Oxford Street site contains Berkeley Way West, an academic building that was recently constructed in 2018; therefore, the existing use would be infeasible to displace and unsuitable for development of the proposed laboratory facilities. The Oxford Tract, located along Oxford Street, between Hearst Avenue and Virginia Street, contains a large agricultural research facility encompassing 5.6 acres. The site is designated in the 2021 LRDP for residential, campus life, and parking uses. Because the proposed laboratory facilities would not maximize the site's capacity relative to the other proposed uses, UC Berkeley determined that this site would be unsuitable for development of these facilities.

UC Berkeley determined that the remaining site, 1995 University Avenue, is potentially suitable for development of the proposed laboratory facilities, despite the fact that it is somewhat smaller (1.71 acres) than the recommended screening criterion size (1.86 acres). Because proposed uses for the site, as identified in the 2021 LRDP, include residential uses (along with academic life, and parking) (UC Berkeley 2021), this site also does not strictly meet the screening criteria related to demolition of existing uses or sites proposed for housing. However, there is no specific housing project currently proposed for the site, and the other proposed uses under the 2021 LRDP are in line with the uses proposed for the project.

The parcel is 1.71 acres and is currently occupied by a 244,249-square-foot building. The building was constructed in 1979 and the site was identified in the 2021 LRDP as having potential to develop a building with up to 450,000 gross square feet, 550 beds, 240 parking spaces, and 12 stories. Due to the age of the existing structure, its relative size, and its current use as administrative/office space, development of the site with laboratory facilities would be considered a lesser change in use type compared to the other two sites. Under the Off-Site Alternative at 1995 University Avenue, the building footprints would be slightly reduced to fit on the smaller parcel, but the same number of employees as proposed under the project could likely be accommodated.

The existing building contains the Golden Bear Center, which houses various departments (School of Public Health, Goldman School of Public Policy, Office of Parking & Transportation, Berkeley Law, Institute for East Asian Studies, University Development and Alumni Relations, Osher Lifelong Learning Institute, and UC Berkeley Extension) and parking. There are approximately 996 employees currently working in the building. These employees would be displaced as part of this alternative. Prior to building demolition, UC Berkeley would need to develop a decanting strategy that identifies suitable new projects to house these departments because no existing spaces on the campus are suitable to accommodate the number of displaced employees at a single location. This may involve separating the departments into different buildings across the Campus Park or the development of one or more new temporary/permanent structures in the Campus Park to house the aforementioned departments to be relocated. As stated in the 2021 LRDP EIR, academic life and campus life building square footage within the 2021 LRDP study area totals approximately 11,830,000 square feet, of which approximately 8,280,000 square feet are located within the Campus Park. The existing departments (assuming similar programming space would be needed) represent approximately three percent of the total academic life and campus life building square footage. For the purposes of this analysis, it is considered likely that the existing programming space could be spread within existing assets of the Campus Park and other buildings within the UC Berkeley campus. Although it is possible that existing programming space within the Campus Park and other buildings within the UC Berkeley campus may not be capable of accommodating the existing programming at 1995 University Avenue, any further detail on this issue at this time is considered speculative and not required under CEQA per Section 15145 of the State CEQA Guidelines.

Consistency with Project Objectives

The Off-Site Alternative would meet the project objectives to address critical programmatic needs because this alternative would provide adequate life-science research and wet laboratory space, create a multi-user site that encourages collaboration for life sciences and climate research, provide academic and research facilities within Downtown Berkeley, and create a mobility hub that is integrated with other multi-modal transportation systems. The proposed facilities under the Off-Site Alternative would need to be reduced in size to fit on the smaller footprint of this site (1.71 acres) relative to the project site (1.86 acres). Therefore, this alternative would provide slightly less research and laboratory space for future users. The Off-Site Alternative would also place the laboratory buildings approximately 0.3 mile from the Campus Park (approximately 8-minute walk), while the project would be approximately 400 feet from the Campus Park (approximately 2-minute walk). Therefore, this alternative would be less desirable for fostering collaboration and accessibility between other research facilities on the Campus Park in comparison to the project.

The Off-Site Alternative would meet most of the basic project objectives to optimize campus land resources because this alternative would create modern and flexible buildings for laboratory facilities, maximize site capacity, provide publicly-accessible open space, accelerate revitalization in Downtown Berkeley, and redevelop a site that is currently underutilized. However, as noted above, the existing building at 1995 University Avenue is currently occupied by various campus departments that would be displaced under the Off-Site Alternative. This building was constructed in 1979 and is still in good condition. In comparison, University Hall was constructed in 1959 and is currently unoccupied due to issues with seismic stability. Therefore, the project site is a higher priority for redevelopment compared to the parcel selected for the Off-Site Alternative. Furthermore, because 1995 University Avenue was identified as a potential area for future housing in the 2021 LRDP, this alternative would not meet the project objective of allowing for the development of research space without reducing UC Berkeley's ability to provide housing or relocating existing academic functions.

The Off-Site Alternative would be consistent with objectives to modernize campus infrastructure because it would provide facilities that meet or exceed sustainability goals and policies, address deficiencies in aging buildings, and upgrade infrastructure in a cost-effective manner.

Feasibility

The Off-Site Alternative would be a feasible alternative to the project because the parcel is already owned by UC Berkeley and is located within walking distance of the campus and public transportation within Downtown Berkeley. In addition, the parcel is within a developed, urban area and is already served by existing utility and transportation infrastructure. The parcel is large enough to accommodate the proposed laboratory and research uses, which would be compatible with existing land uses of the site and surrounding environment. However, as noted above, the existing building at 1995 University Avenue is still in good condition and is lower priority for redevelopment than University Hall, which needed to be vacated because it was determined to be seismically unsafe.

Further, as noted above, the Off-Site Alternative would require relocation of roughly 996 employees that currently occupy the building. Relocating the employees to other nearby off-campus offices would not be feasible because UC Berkeley does not currently have the space elsewhere to accommodate these employees. Because of the competing program needs of the departments and offices, UC Berkeley could need to implement multiple efforts/projects to relocate/redistribute existing programs in the building to other spaces within the Campus Park, which could span several years. Reducing the amount of space allocated to each existing department, office, or program is not considered feasible as part of a potential decanting strategy as it would likely impair UC Berkeley's teaching, learning, and research missions.

ENVIRONMENTAL ANALYSIS OF ALTERNATIVE A

The following sections provide a comparative analysis of the environmental impacts of the Off-Site Alternative relative to the project. The environmental analysis focuses on the impacts associated with demolishing the existing building at 1995 University Avenue and redeveloping the site with laboratory buildings and associated infrastructure similar to those proposed under the project. As noted above, UC Berkeley would need to implement multiple efforts/projects to relocate/redistribute the existing programs and about 996 employees that currently occupy the building to other properties/buildings owned and operated by UC Berkeley. For the purposes of this analysis, it is considered likely that the existing programming space could be spread within existing assets of the Campus Park and other buildings within the UC Berkeley campus and within one mile of their current location. In addition, this analysis assumes that the relocated programs would exhibit similar operational characteristics to existing conditions. Although it is possible that existing programming space may not be capable of accommodating the existing programming, this is considered speculative and therefore further analysis is not required under CEQA per Section 15145 of the State CEQA Guidelines. If the Off-Site Alternative is adopted and UC Berkeley determines that constructing new buildings is required to accommodate displaced employees, UC Berkeley would be required to evaluate whether these projects have potential to result in additional impacts at the time such projects are proposed. In accordance with CEQA Guidelines Section 15145, the impacts associated with constructing new buildings is too speculative for evaluation and is not discussed further in this EIR.

Aesthetics

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. As with the project, the new buildings under the Off-Site Alternative would be similar in height to the surrounding buildings. The proposed facilities under the Off-Site Alternative would undergo the same design review process as required for the project to ensure consistency with UC Berkeley's policies governing scenic quality and to ensure compliance with regulations and standards related to light pollution and glare minimization. UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. However, as part of its 2021 settlement agreement, UC Berkeley has committed to review and consider the City of Berkeley's adopted planning and zoning documents when locating University facilities off of the Campus Park and, for projects located within the Downtown Area Plan or the Southside Area Plan, to consider the design guidelines and standards contained within those plans, as applicable, when designing projects in those respective plan areas to the extent they are consistent with the program for the building. Similar to the project, this alternative would result in a less-than-significant impact related to conflicts with applicable zoning and regulations governing scenic quality and the creation of new sources of light and glare. Overall, the Off-Site Alternative would result in a similar impact on aesthetics compared to the project.

Air Quality

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. Demolition activities would be greater under the Off-Site Alternative (244,249-square-foot building and approximately 32,000 square feet of pavement) than the project (approximately 200,000 square feet of existing buildings and pavement). Because demolition activities would occur on a slightly larger scale than under the project, this alternative would contribute to a slightly greater increase in construction-related air pollutant emissions compared to the project. Like the project, construction activities would not result in exceedances of Bay Area Air Quality Management District thresholds.

The Off-Site Alternative would involve the same laboratory uses and generate the same number of new employees as the project. As noted above, the roughly 996 displaced employees would be spread within existing assets of the Campus Park and other buildings within the UC Berkeley campus and would exhibit similar operational characteristics to existing conditions. It is possible that the relocated/redistributed employees associated with the existing departments at 1995 University Avenue could generate additional emissions as a result of this alternative. However, as noted above, these employees are anticipated to be located within one mile of their current location and mobile source emissions associated with changes in daily travel are anticipated to be minimal. Therefore, operation of the Off-Site Alternative would contribute to a similar increase in air pollutant emissions as the project.

Like the project, the Off-Site Alternative would result in a less-than-significant impact related to consistency with the applicable air quality plan, construction and operational criteria air pollutants and ozone precursors, toxic air contaminants, carbon monoxide hot spots, and odorous emissions. Overall, the construction-related impact on air quality would be slightly greater under the Off-Site Alternative than the project because of the slightly larger scale of demolition activities, while the operation-related impact on air quality would be similar under the Off-Site Alternative compared to the project due to the similar overall size and employment at the off-site location.

Biological Resources

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. The existing building and surface parking lot are bordered with mature trees and shrubs that could provide nesting habitat suitable for nesting birds. As with the project, tree removal could result in direct impact on native nesting birds if they are present. The noise and activity associated with demolition and construction activities could also result in indirect disturbance, such as nest abandonment and loss of eggs or chicks. Similar to the project, the Off-Site Alternative would result in a less-than-significant impact related to disturbance to native nesting birds.

The existing building at 1995 University Avenue is seven-stories tall. As with the project, the new buildings planned for construction are similar in height to the existing building and would not materially alter the potential for bird/building collisions. However, because the project site is within a major migratory route for birds (i.e., Pacific Flyway and San Francisco Bay), redevelopment of the site could result in disturbance to the typical movement and migration patterns of birds or bird strikes potentially leading to injury or death of birds. The same mitigation proposed for the project, which requires implementation of bird-friendly building design elements to reduce bird collision risk, would be applied to the Off-Site Alternative. Similar to the project, the Off-Site Alternative would result in a potentially significant but mitigatable impact related to interference with bird migration and movement and increases in the likelihood of bird strikes. Overall, the Off-Site Alternative would result in a similar impact on biological resources compared to the project.

Archaeological, Historical, and Tribal Cultural Resources

Under the Off-Site Alternative, the Ernest A. Heron Building and Martha E. Sell Building would not be demolished, and the Shattuck Avenue Downtown Historic District would not be altered. The existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. Because the existing building was constructed in 1979, it is only 45 years old and is not likely to be a historical resource under CEQA. An evaluation would need to be completed to confirm the building’s eligibility. In addition, the building is not a contributor to the Shattuck Avenue Downtown Historic District. Therefore, the No Project Alternative would likely avoid the project’s significant and unavoidable impact on historical resources. As with the project, the Off-Site Alternative would have potential to encounter previously undisturbed archaeological resources, tribal cultural resources, and unknown human remains because this alternative would involve excavation and other ground disturbance. Therefore, this alternative would not avoid the project’s significant but mitigable impacts on archaeological and tribal cultural resources and the less-than-significant impact on human remains. Overall, the impact on archaeological, historical, and tribal cultural resources would be less under the Off-Site Alternative than the project because demolition of historical buildings would not occur.

Energy

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. Demolition activities would be greater under the Off-Site Alternative (244,249-square-foot building and approximately 32,000 square feet of pavement) than the project (approximately 200,000 square feet of existing buildings and pavement). Because demolition activities associated with this alternative would occur on a slightly larger scale than under the project, this alternative would contribute to slightly greater energy consumption compared to the project. The Off-Site Alternative would contribute to a similar increase in energy consumption during operation because this alternative would generate the same number of new employees working at and traveling to the site relative to the project. This alternative would include design features similar to those of the project that would meet the energy efficiency requirements mandated by the state and UC. Like the project, the Off-Site Alternative would result in a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources and conflicts with renewable energy or energy efficiency plans. Overall, the impact on energy from construction would be greater under the Off-Site Alternative than the project due to the larger scale of demolition activities, while the impact on energy from operation would be similar under the Off-Site Alternative than the project due to the similar overall size and employment at the off-site location.

Geology and Soils

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. The Off-Site Alternative would undergo the same design review process to ensure the proposed facilities are consistent with seismic and building code requirements. Therefore, like the project, the Off-Site Alternative would result in a less-than-significant impact related to (1) increasing the risk of loss, injury, or death related to earthquake fault rupture, strong seismic ground shaking, seismic-related ground failure, and landslides; (2) causing instability of the project site resulting in landslide, lateral spreading, subsidence, liquefaction, or collapse; and (3) creating substantial risks to life or property as a result of expansive soils. As with the project, the Off-Site Alternative would have potential to result in erosion and disturb paleontological resources because this alternative would involve similar quantities of ground disturbance. Overall, the Off-Site Alternative would result in a similar impact on geology and soils compared to the project.

Greenhouse Gas Emissions and Climate Change

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. The Off-Site Alternative would require demolition of the 244,249-square-foot building and approximately 32,000 square feet of pavement, while the project would require demolition of approximately 200,000 square feet of existing buildings and pavement. Because demolition activities associated with this alternative would occur on a larger scale than under the project, this alternative would contribute to a greater increase in construction-related GHG emissions compared to the project. Compared to the project, the Off-Site Alternative would contribute to a similar increase in GHG emissions during operation because there would generate the same number of new employees working at and traveling to the site. As with the project, this alternative would be required to meet the UC Sustainable Practices Policy. Like the project, the Off-Site Alternative would result in a potentially significant but mitigatable impact related to generating GHG emissions and less than significant impact relating to conflicting with plans, policies, and regulations adopted for the purpose of reducing GHG emissions. Overall, the impact on GHG emissions and climate change from construction would be greater under the Off-Site Alternative than the project due to the larger scale of demolition activities, while the impact on GHG emissions and climate change from operation would be similar under the Off-Site Alternative due to the similar overall size and employment at the off-site location.

Hazards and Hazardous Materials

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. Similar to the project, this alternative would involve the transport, use, and disposal of hazardous materials at the project site; increase the risk of an accidental release of hazardous materials into the environment; and increase emissions of hazardous substances in proximity to schools. Asbestos-containing materials and lead-based paint are not likely to be present at the site based on the building's age (constructed in 1979). In addition, 1995 University Avenue is not listed as a cleanup site on a hazardous materials database (SWRCB 2024; DTSC 2024) and any soil or groundwater contamination, if present, would have likely been remediated prior to the construction of the building. However, similar to the project, the Off-Site Alternative could result in releases of hazardous materials into the environment if undocumented contamination exists at the site. A Phase I Environmental Site Assessment would be required to determine if hazardous conditions are present on the property. Therefore, this alternative would also have a less-than-significant impact related to creating significant hazards to the public and the environment from hazardous materials sites. Like the project, the Off-Site Alternative would involve construction activities within roadway rights-of-way and would generate an increase in vehicle trips compared to existing conditions. Compared to the project, this alternative would generate similar vehicle trips on emergency response and evacuation routes because this alternative would generate the same number of new employees. Like the project, this alternative would have a less-than-significant impact related to emergency response and evacuation. Overall, the Off-Site Alternative would result in a similar impact on hazards and hazardous materials than the project.

Hydrology and Water Quality

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. This alternative would involve similar amounts of ground disturbance and, like the project, would modify existing impervious surfaces and drainage patterns at the site. As with the project, the Off-Site Alternative would be required to comply with applicable permits and regulations governing water quality, including the requirements of the National Pollutant Discharge Elimination System program. The site design would incorporate best management practices to reduce the potential for pollutants to enter runoff and ensure adequate site drainage. Therefore, like the project, the Off-Site Alternative would have a less-than-significant impact related to violating water quality standards or waste discharge requirements; decreasing groundwater supplies and interfering with groundwater recharge; altering drainage patterns in a manner that results in erosion and siltation, on- or off-site flooding, polluted runoff, or an exceedance of the capacity of stormwater drainage systems; and conflicting with or obstructing implementation of a water quality control plan. Overall, the Off-Site Alternative would result in a similar impact on hydrology and water quality compared to the project.

Land Use and Planning

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. The proposed facilities under the Off-Site Alternative would undergo the same design review process as required for the project to ensure consistency with UC Berkeley's 2021 LRDP goals and objectives and with UC Berkeley's Physical Design Framework strategy related to environmental protections associated with land use. As with the project, the Off-Site Alternative would be located within the City Environs land use zone and the City's Downtown Plan Area and would be subject to the provisions in the 2021 settlement agreement, as discussed under the "Aesthetics" section above. Like the project, this alternative would have a less-than-significant impact related to conflicts with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Overall, the Off-Site Alternative would result in a similar impact on land use and planning compared to the project.

Noise and Vibration

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. The nearest noise-sensitive receptor is an apartment building approximately 40 feet north of this site. As with the project, the Off-Site Alternative would require construction activities that would expose nearby noise-sensitive receptors to noise levels that exceed applicable standards. The same mitigation proposed for the project, which requires implementation of construction noise reduction measures, would be applied to the Off-Site Alternative. As with the project, the mitigation would not be sufficient to reduce construction noise exposure levels at nearby sensitive receptors to below the applicable standards and the impact would remain significant and unavoidable. The Off-Site Alternative would also require construction activities that would generate excessive vibration levels that could exceed criteria for structural damage at the nearest buildings and result in human annoyance at the nearest residential dwellings. The same mitigation proposed for the project, which requires implementation of construction vibration reduction measures, would be applied to the Off-Site Alternative and would reduce the impact to a less-than-significant level. As with the project, the Off-Site Alternative would result in increases in traffic volumes and permanent increases in traffic noise; however, increases in noise levels are anticipated to be less than significant. As with the project, the Off-Site Alternative would result in increases in noise levels from loading dock activities that would exceed the City of Berkeley's daytime noise standard at the nearest noise sensitive receptors. The same mitigation measures proposed for the project, which require implementation of noise reduction and design measures to reduce long-term noise impacts from loading docks, would be applied to the Off-Site Alternative. As with the project, it is not possible to guarantee that noise from loading dock activities would be reduced to levels below the City's noise standards and the impact would remain significant and unavoidable. Overall, the Off-Site Alternative would result in a similar impact on noise compared to the project.

Population, Employment, and Housing

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. The Off-Site Alternative would generate the same number of new employees as the project, and the increase in employment opportunities would be within the projections identified in the UC Berkeley 2021 LRDP and other regional plans. Like the project, the Off-Site Alternative would have a less-than-significant impact related to inducing substantial unplanned population growth. The Off-Site Alternative would displace about 996 employees; however, the displacement of employees would not necessitate the construction of new housing because these employees would be relocated or redistributed within existing assets of the Campus Park and other buildings within the UC Berkeley campus and within one mile of their current location. Therefore, the Off-Site Alternative would have a less-than-significant impact related to displacing substantial numbers of existing people. Overall, the Off-Site Alternative would result in a similar impact on population and housing compared to the project.

Public Services and Recreation

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. The Off-Site Alternative would generate the same number of new employees as the project. Therefore, the Off-Site Alternative would result in a similar increase in demand for public services as the project, including fire and police protection, schools, libraries, and parks and recreational facilities. Overall, the Off-Site Alternative would result in a similar impact on public services and recreation compared to the project.

Transportation

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. As with the project, the Off-Site Alternative would not result in permanent modifications to the existing circulation system. In addition, the Off-Site Alternative would encourage sustainable modes of transportation, provide on-site parking, implement a Construction Traffic Management Plan to minimize impacts from construction activities within roadway rights-of-way. Therefore, like the project, the Off-Site Alternative would have a less-than-significant impact related to conflicts with programs, plans, ordinances, and policies addressing the circulation system. The Off-Site Alternative would generate a similar increase in vehicle trips from existing conditions compared to the project because this alternative would generate the same number of new employees as the project. After the roughly 996 employees that currently occupy the building are relocated to other spaces, the existing vehicle trips associated with these employees would be redistributed within 1 mile of the site. Like the project, this alternative site is within 0.5 mile of a major transit stop and would meet the vehicle miles traveled screening criteria for projects within a Transit Priority Area. Therefore, the Off-Site Alternative would have a less-than-significant impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b). Like the project, the Off-Site alternative would be designed and built according to applicable state, UC, and City of Berkeley standards to minimize safety hazards and ensure that emergency access by fire or emergency services personnel would not be impaired. Therefore, the Off-Site Alternative would have a less-than-significant impact related to hazards due to geometric design features or incompatible uses and inadequate emergency access. Overall, the Off-Site Alternative would result in a similar impact on transportation compared to the project.

Utilities and Service Systems

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. Like the project, the Off-Site Alternative would require tie-ins to existing utility infrastructure. As with the project, this alternative would result in a less-than-significant impact related to the environmental effects of establishing new connections to existing water supply, sewer, electric, and telecommunications infrastructure. The Off-Site Alternative would generate the same number of new employees as the project. Therefore, the Off-Site Alternative would result in a similar increase in demand for water, wastewater treatment, electricity, telecommunications, and solid waste collection services at the site compared to the project. Like the project, the Off-Site Alternative would have a less-than-significant impact related to the sufficiency of water supplies, capacity of existing wastewater treatment systems, and capacity of solid waste infrastructure. Overall, the Off-Site Alternative would result in a similar impact on utilities and service systems compared to the project.

Wildfire

Under the Off-Site Alternative, the existing building at 1995 University Avenue would be demolished and redeveloped with buildings and associated infrastructure similar to those proposed under the project. Like the project, the Off-Site Alternative would involve similar construction and operation activities within roadway rights-of-way and would generate the same number of new employees and associated vehicle trips as the project. Like the project, the Off-Site Alternative would result in a less-than-significant impact related to hindering emergency access and evacuation in the event of a wildfire, and would result in similar changes to existing utility and transportation infrastructure as the project. Therefore, like the project, this alternative would result in a less-than-significant impact from the installation of infrastructure that may exacerbate fire risk. Like the project, the Off-Site Alternative would change the existing vegetation, topography, and drainage of the site, and would have a less-than-significant impact related to exacerbating wildfire or uncontrolled spread of wildfire and exposing people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes. Overall, the Off-Site Alternative would result in a similar impact on wildfire compared to the project.

6.3.3 Alternative B: Reduced Footprint Alternative

ALTERNATIVE DESCRIPTION

Similar to the project, the Reduced Footprint Alternative would result in the development of two laboratory buildings, a landscaped courtyard, a parking garage, supporting utilities, and circulation improvements. Under this alternative, the South Building would be the same as described in Section 2.6.1, “Laboratory Buildings,” for the project. The total square footage and building footprint of the North Building would be reduced by 50 percent compared to the project, for a gross square footage of 155,000 square feet By occupying a smaller footprint, this alternative would avoid demolition of the two UC-owned commercial buildings located at 2136-2140 University Avenue (Ernest A. Heron Building) and 2154-2160 University Avenue (Martha E. Sell Building), which are historical resources under CEQA. Consequently, the North Building would have reduced space for wet and dry laboratory research and laboratory support space, research and administrative offices, meeting rooms, and conference space. In addition, the number of vehicle parking spaces would be reduced by almost 50 percent for a total of 200 spaces.

Consistency with Project Objectives

The Reduced Footprint Alternative would meet most of the basic project objectives to address critical programmatic needs because this alternative would create a multi-user site that encourages collaboration for life sciences and climate research, provide academic and research facilities within Downtown Berkeley, and create a mobility hub that is integrated with other multi-modal transportation systems. The proposed facilities under the Reduced Footprint

Alternative would need to be reduced by approximately 155,000 square feet to fit on a smaller footprint that avoids the commercial buildings. Therefore, this alternative would not provide the needed 450,000 gross square feet of life-science research and wet laboratory space to support UC Berkeley's academic mission, to expand its research enterprise, and to accelerate cutting-edge discovery and innovation in life sciences and climate research.

The Reduced Footprint Alternative would meet most of the basic project objectives to optimize campus land resources because this alternative would balance the need for modern academic and research facilities while preserving historic resources, provide publicly-accessible open space, accelerate revitalization in Downtown Berkeley, allow for the development of research space without reducing UC Berkeley's ability to provide housing or relocating existing academic functions, and redevelop a site that is currently underutilized. However, the Reduced Footprint Alternative would not provide a building of sufficient rectangular dimension to accommodate the number of users, would not provide optimum dimensions for the planned research labs and accessory uses, parking spaces, and loading area that could be accommodated under the project. In addition, the Reduced Footprint Alternative would not maximize the capacity of the existing space because the existing commercial buildings would be limited in the types of uses they could accommodate.

The Reduced Footprint Alternative would be consistent with objectives to modernize campus infrastructure because it would provide facilities that meet or exceed sustainability goals and policies, address deficiencies in aging buildings, and upgrade infrastructure in a cost-effective manner.

Feasibility

As described in Section 2.6.1, "Laboratory Buildings," the North Building is anticipated to house the Innovative Genomics Institute (IGI), as well as other organizations, such as government entities, private companies, and research institutes with which UC Berkeley and/or IGI has research affiliations for industrial scientific and technological research purposes. The Reduced Footprint Alternative would reduce the area that could be leased for research and office space by 50 percent when compared to the area that would be available under the project.

As discussed in Section 2.6, "Project Elements," the ideal configuration for the proposed North Building is a minimum length to width ratio of 2:1, which maximizes the efficiency of the building's operations. When the building width is reduced and the plan becomes square in proportion, the yield per floor is reduced. The space requirements for stairs, shafts, and electrical rooms are relatively constant regardless of the building configuration, so the efficiency, or usable space, per floor decreases as the building length is reduced. It also becomes less efficient to incorporate office spaces at either end of a square building, with labs in the middle. Decreasing the building width also would make it extremely difficult, if not impossible, to maintain both a loading dock and parking on the ground floor. Therefore, the Reduced Footprint Alternative would be less feasible than the project.

ENVIRONMENTAL ANALYSIS OF ALTERNATIVE B

Aesthetics

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historical resources—the Ernest A. Heron Building and Martha E. Sell Building. The proposed facilities under the Reduced Footprint Alternative would undergo the same design review process as required for the project to ensure consistency with UC Berkeley's policies governing scenic quality. Similar to the project, this alternative would result in a less-than-significant impact related to conflicts with applicable zoning and other regulations governing scenic quality. In addition, the Reduced Footprint Alternative would undergo the same design review process as required for the project to ensure compliance with regulations and standards related to light pollution and glare minimization. Because the building size would be smaller, this alternative would result in reduced building lighting and surface area for glare compared to the project. Similar to the project, this alternative would result in a less-than-significant impact related to the creation of new sources of light and glare. However, the overall impact on aesthetics would be slightly less under the Reduced Footprint Alternative compared to the project due to the smaller building size.

Air Quality

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. Because demolition and construction activities would occur on a smaller scale than under the project and because there would be a smaller net increase in employees working at and traveling to the site, this alternative would contribute to a smaller increase in air pollutant emissions compared to the project. Like the project, the Reduced Footprint Alternative would result in a less-than-significant impact related to consistency with the applicable air quality plan, construction and operational criteria air pollutants and ozone precursors, toxic air contaminants, carbon monoxide hot spots, and odorous emissions. Overall, the impact on air quality would be less under the Reduced Footprint Alternative than the project due to the reduced building footprint and smaller net increase in employees.

Biological Resources

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. As with the project, tree removal could result in direct impact on native nesting birds if they are present. The noise and activity associated with demolition and construction activities could also result in indirect disturbance, such as nest abandonment and loss of eggs or chicks. As with the project, the Reduced Footprint Alternative would result in a less-than-significant impact related to disturbance to native nesting birds.

As with the project, the new buildings planned for construction are similar in height to the existing building and would not materially alter the potential for bird/building collisions. However, because the project site is within a major migratory route for birds (i.e., Pacific Flyway and San Francisco Bay), redevelopment of the site could result in disturbance to the typical movement and migration patterns of birds or bird strikes potentially leading to injury or death of birds. The same mitigation proposed for the project, which requires implementation of bird-friendly building design elements to reduce bird collision risk, would be applied to the Reduced Footprint Alternative. Similar to the project, the Reduced Footprint Alternative would result in a potentially significant but mitigatable impact related to interference with bird migration and movement and increases in the likelihood of bird strikes. Overall, the Reduced Footprint Alternative would result in a similar impact on biological resources compared to the project.

Archaeological, Historical, and Tribal Cultural Resources

As discussed in Section 3.4, “Archaeological, Historical, and Tribal Cultural Resources,” the Ernest A. Heron Building and Martha E. Sell Building are historical resources under CEQA and contributors to the Shattuck Avenue Downtown Historic District. The Heron and Sell buildings are locally significant both individually as well as being considered contributors to the Shattuck Avenue Downtown Historic District. The Reduced Footprint Alternative would avoid the demolition of the Ernest A. Heron Building and Martha E. Sell Building and the project’s significant and unavoidable impact on these historical resources. Because this alternative would avoid the two historic buildings, it would not include construction of new structures withing the Shattuck Avenue Downtown Historic District. The South and reduced North buildings would be located outside of the historic district and would not result in an intrusion that is incompatible with the historic district. Therefore, this alternative would avoid the significant and unavoidable impact of the project on the historic district. As with the project, the Reduced Footprint Alternative would have potential to encounter previously undisturbed archaeological resources, tribal cultural resources, and unknown human remains because this alternative would involve excavation and other ground disturbance. Therefore, this alternative would not avoid the project’s significant but mitigable impacts on archaeological and tribal cultural resources and less-than-significant impact on human remains. Overall, the impact on archaeological, historical, and tribal cultural resources would be less under the Reduced Footprint Alternative than the project because demolition of historical buildings would not occur.

Energy

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. Because demolition and construction activities would occur on a smaller scale than under the project and because there would be a smaller net increase in employees working at and traveling to the site, this alternative would contribute to a smaller increase in energy consumption compared to the project. This alternative would include design features similar to those of the project that would meet the energy efficiency requirements mandated by the state and the UC. Like the project, the Reduced Footprint Alternative would result in a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources and conflicts with renewable energy or energy efficiency plans. Overall, the impact on energy would be less under the Reduced Footprint Alternative than the project due to the reduced building footprint and smaller net increase in employees.

Geology and Soils

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. The Reduced Footprint Alternative would undergo the same design review process to ensure consistency with seismic and building code requirements. Like the project, the Reduced Footprint Alternative would result in a less-than-significant impact related to (1) increasing the risk of loss, injury, or death related to earthquake fault rupture, strong seismic ground shaking, seismic-related ground failure, and landslides; (2) causing instability of the project site resulting in landslide, lateral spreading, subsidence, liquefaction, or collapse; and (3) creating substantial risks to life or property as a result of expansive soils. The Reduced Footprint Alternative would have potential to result in erosion and disturb paleontological resources because this alternative would involve ground disturbance but would disturb smaller quantities of soil compared to the project. Overall, the Reduced Footprint Alternative would impact geology and soils to a lesser degree than the project because of the reduced area of ground disturbance.

Greenhouse Gas Emissions and Climate Change

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. Because demolition and construction activities would occur on a smaller scale than under the project and because there would be a smaller net increase in employees working at and traveling to the site, this alternative would contribute to a smaller increase in GHG emissions compared to the project. As with the project, this alternative would be required to meet the UC Sustainable Practices Policy. Like the project, the Reduced Footprint Alternative would result in a potentially significant but mitigatable impact related to generating GHG emissions and a less than significant impact relating to conflicting with plans, policies, and regulations adopted for the purpose of reducing GHG emissions. Overall, the impact on GHG emissions and climate change would be less under the Reduced Footprint Alternative than the project due to the reduced building footprint and smaller net increase in employees.

Hazards and Hazardous Materials

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. Similar to the project, this alternative would involve the transport, use, and disposal of hazardous materials at the project site; increase the risk of an accidental release of hazardous materials into the environment; and increase emissions of hazardous substances in proximity to schools. Similar to the project, the Reduced Footprint Alternative could result in releases of hazardous materials into the environment if undocumented contamination exists at the site. Therefore, this alternative would also have a less-than-significant impact related to creating significant hazards to the public and the environment from hazardous materials sites. Like the project, the Reduced Footprint Alternative would involve construction activities within roadway rights-of-way and would generate an increase in vehicle trips compared to existing conditions; however, because of the reduced building occupancy, this alternative would generate a smaller increase in vehicle trips than what would occur under the project. Like the project, this alternative would have a less-than-significant impact related to emergency response and evacuation, although to a lesser degree than the project. Overall, the impact related to hazards and hazardous materials would be slightly less under the Reduced Footprint Alternative than the project due to the reduced building occupancy.

Hydrology and Water Quality

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. This alternative would involve less ground disturbance and fewer modifications to existing impervious surfaces and drainage patterns at the site. As with the project, the Reduced Footprint Alternative would be required to comply with applicable permits and regulations governing water quality, including the requirements of the National Pollutant Discharge Elimination System program. The site design would incorporate best management practices to reduce the potential for pollutants to enter runoff and ensure adequate site drainage. Therefore, like the project, the Reduced Footprint Alternative would have a less-than-significant impact related to violating water quality standards or waste discharge requirements; decreasing groundwater supplies and interfering with groundwater recharge; altering drainage patterns in a manner that results in erosion and siltation, on- or off-site flooding, polluted runoff, or an exceedance of the capacity of stormwater drainage systems; and conflicting with or obstructing implementation of a water quality control plan. Overall, the impact on hydrology and water quality would be slightly less under the Reduced Footprint Alternative compared to the project because of the smaller footprint.

Land Use and Planning

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. The proposed facilities under the Reduced Footprint Alternative would undergo the same design review process as required for the project to ensure consistency with UC Berkeley's 2021 LRDP goals and objectives and with UC Berkeley's Physical Design Framework strategy related to environmental protections associated with land use. Like the project, this alternative would have a less-than-significant impact related to conflicts with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Overall, the Reduced Footprint would result in a similar impact on land use and planning compared to the project.

Noise and Vibration

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. As with the project, the Reduced Footprint Alternative would require construction activities that would expose nearby noise-sensitive receptors to noise levels that exceed applicable standards. The same mitigation proposed for the project, which requires implementation of construction noise reduction measures, would be applied to the Reduced Footprint Alternative. As with the project, the mitigation would not be sufficient to reduce construction noise exposure levels at nearby sensitive receptors to below the applicable standards and the impact would remain significant and unavoidable. The Reduced Footprint Alternative would also require construction activities that would generate excessive vibration levels that could exceed criteria for structural damage at the nearest buildings and result in human annoyance at the nearest residential dwellings. The same mitigation proposed for the project, which requires implementation of construction vibration reduction measures, would be applied to the Reduced Footprint Alternative and would reduce the impact to a less-than-significant level. As with the project, the Reduced Footprint Alternative would result in increases in traffic volumes and permanent increases in traffic noise; however, increases in noise levels are anticipated to be less-than-significant. As with the project, the Reduced Footprint Alternative would result in increases in noise levels from loading dock activities that would exceed the City of Berkeley's daytime noise standard at the nearest noise sensitive receptors. The same mitigation measures proposed for the project, which require implementation of noise reduction and design measures to reduce long-term noise impacts from loading docks, would be applied to the Reduced Footprint Alternative. As with the project, it is not possible to guarantee that noise from loading dock activities would be reduced to levels below the City's noise standards and the impact would remain significant and unavoidable. Overall, the Reduced Footprint Alternative would result in a similar impact on noise compared to the project.

Population, Employment, and Housing

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. As with the project, the Reduced Footprint Alternative would increase employment opportunities within the projections identified in the UC Berkeley 2021 LRDP and other regional plans. Because of the smaller building footprint, this alternative would generate a smaller net increase in employees than would occur under the project. Like the project, the Reduced Footprint Alternative would have a less-than-significant impact related to inducing substantial unplanned population growth. Overall, the impact on population and housing would be slightly less under the Reduced Footprint Alternative compared to the project due to the reduced building occupancy.

Public Services and Recreation

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. As with the project, the Reduced Footprint Alternative would increase employment opportunities at the site, which would increase the demand for public services, including fire and police protection, schools, libraries, and parks and recreational facilities. Because of the smaller building footprint, this alternative would generate a smaller net increase in employees and associated demand for public services than would occur under the project. Overall, the impact on public services and recreation would be slightly less under the Reduced Footprint Alternative compared to the project due to the reduced building occupancy.

Transportation

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. As with the project, the Reduced Footprint Alternative would not result in permanent modifications to the existing circulation system. In addition, the Reduced Footprint Alternative would encourage sustainable modes of transportation, provide on-site parking, implement a Construction Traffic Management Plan to minimize impacts from construction activities within roadway rights-of-way, and adhere to a Transportation Demand Management Plan that provides trip reduction measures during operations. Therefore, the Reduced Footprint Alternative would have a less-than-significant impact related to conflicts with programs, plans, ordinances, and policies addressing the circulation system. The Reduced Footprint Alternative would generate a smaller net increase in vehicle trips from existing conditions compared to the project because this alternative would generate a smaller net increase in employees. Like the project, this alternative is within 0.5 mile of a major transit stop and would meet the vehicle miles traveled screening criteria for projects within a Transit Priority Area. Therefore, the Reduced Footprint Alternative would have a less-than-significant impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b). Like the project, the Reduced Footprint alternative would be designed and built according to applicable state, UC, and City of Berkeley standards to minimize safety hazards and ensure that emergency access by fire or emergency services personnel would not be impaired. Therefore, the Reduced Footprint Alternative would have a less-than-significant impact related to hazards due to geometric design features or incompatible uses and inadequate emergency access. Overall, the impact on transportation would be slightly less under the Reduced Footprint Alternative compared to the project due to the smaller net increase in vehicle trips.

Utilities and Service Systems

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. Like the project, the Reduced Footprint Alternative would require tie-ins to existing utility infrastructure. As with the project, this alternative would result in a less-than-significant impact related to the environmental effects of establishing new connections to existing water supply, sewer, electric, and telecommunications infrastructure. Because the building occupancy would be reduced, this alternative would contribute to a smaller increase in demand for water, wastewater treatment, electricity, telecommunications, and solid waste collection services compared to the project. Like the project, the Reduced Footprint Alternative would have a less-than-significant impact related to the sufficiency of water supplies, capacity of existing wastewater treatment systems, and capacity of solid waste infrastructure. Overall, the impact on utilities and service systems would be slightly less under the Reduced Footprint Alternative compared to the project due to the reduced building occupancy.

Wildfire

Under the Reduced Footprint Alternative, the proposed laboratory facilities would be constructed on a smaller footprint to avoid demolition of the two historic commercial buildings. Like the project, the Reduced Footprint Alternative would involve construction activities within roadway rights-of-way but would generate a smaller net increase in vehicle trips than the project. As with the project, the Reduced Footprint Alternative would have a less-than-significant impact related to hindering emergency access and evacuation in the event of a wildfire. The Reduced Footprint Alternative would result in similar changes to existing utility and transportation infrastructure as the project. Therefore, this alternative would result in a less-than-significant impact from the installation of infrastructure that may exacerbate fire risk. Like the project, the Reduced Footprint Alternative would change the existing vegetation, topography, and drainage of the project site. Therefore, this alternative would have a less-than-significant impact related to exacerbating wildfire or uncontrolled spread of wildfire and exposing people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes. Overall, the impact on wildfire would be slightly less under the Reduced Footprint Alternative compared to the project due to the smaller increase in vehicle trips on local roadways.

6.4 SUMMARY COMPARISON OF ALTERNATIVES

Table 6-1 provides a comparative summary of the impacts of the project relative to the impacts of the No Project Alternative, Alternative A: Off-Site Alternative, and Alternative B: Reduced Footprint Alternative. The table indicates whether the impacts of the alternatives are less severe (-), similar (=), or more severe (+) than those of the project and identifies whether the alternatives avoid any of the significant and unavoidable impacts of the project.

Table 6-1 Summary of Environmental Impacts of the Alternatives Relative to the Project

Environmental Topic	Project Impact	No Project Alternative Impact	Alternative A: Off--Site Alternative Impact	Alternative B: Reduced Footprint Alternative Impact
Aesthetics				
Impact 3.1-1: Result in Conflict with Applicable Zoning and Other Regulations Governing Scenic Quality	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.1-2: Create a New Source of Substantial Light or Glare, Which Would Adversely Affect Day or Nighttime Views of the Area	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Air Quality				
Impact 3.2-1: Conflict with or Obstruct Implementation of Applicable Air Quality Plan	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.2-2: Result in Construction and Operational Criteria Air Pollutants and Ozone Precursors	Less than significant	No impact (-)	Construction: Less than significant (+) Operation: Less than significant (=)	Less than significant (-)
Impact 3.2-3: Expose Sensitive Receptors to Substantial Toxic Air Contaminants	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.2-4: Expose Sensitive Receptors to Carbon Monoxide Concentration	Less than significant	No impact (-)	Less than significant (-)	Less than significant (=)
Impact 3.2-5: Expose Sensitive Receptors to Odorous Emissions	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Biological Resources				
Impact 3.3-1: Disturb American Peregrine Falcon, White-Tailed Kite, Other Nesting Raptors, and Other Native Nesting Birds	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.3-2: Interfere with Bird Migration and Movement and Increase the Likelihood of Bird Strikes	Less than significant with mitigation	No impact (-)	Less than significant with mitigation (=)	Less than significant with mitigation (=)

Environmental Topic	Project Impact	No Project Alternative Impact	Alternative A: Off--Site Alternative Impact	Alternative B: Reduced Footprint Alternative Impact
Archaeological, Historical, and Tribal Cultural Resources				
Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource	Significant and unavoidable	No impact (-); avoids the project's significant and unavoidable impact	Less than significant (-); avoids the project's significant and unavoidable impact	Less than significant (-); avoids the project's significant and unavoidable impact
Impact 3.4-2: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources	Less than significant with mitigation	No impact (-)	Less than significant with mitigation (=)	Less than significant with mitigation (=)
Impact 3.4-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource	Less than significant with mitigation	No impact (-)	Less than significant with mitigation (=)	Less than significant with mitigation (=)
Impact 3.4-4: Disturb Human Remains	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Energy				
Impact 3.5-1: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy, During Project Construction or Operation	Less than significant	No impact (-)	Construction: Less than significant (+) Operation: Less than significant (=)	Less than significant (-)
Impact 3.5-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Geology and Soils				
Impact 3.6-1: Cause Potential Substantial Adverse Impacts, Involving the Rupture of a Known Earthquake Fault, Strong Seismic Shaking, Seismic-Related Ground Failure, Including Liquefaction, or Landslides	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.6-2: Result in Substantial Soil Erosion or the Loss of Topsoil	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.6-3: Be Located on an Unstable Geologic Unit or Soil, or Become Unstable due to the Project, and Potentially Result in On-Site or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.6-4: Be Located on Expansive Soil, as Defined in Table 18-1-B of the Uniform Building Code, Creating Substantial Risks to Life or Property	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.6-5: Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Greenhouse Gas Emissions and Climate Change				
Impact 3.7-1: Generate GHG Emissions, Either Indirectly or Directly, That May Have a Significant Impact on the Environment	Less than significant with mitigation	No impact (-)	Construction: Less than significant with mitigation (+) Operation: Less than significant with mitigation (=)	Less than significant with mitigation (-)

Environmental Topic	Project Impact	No Project Alternative Impact	Alternative A: Off--Site Alternative Impact	Alternative B: Reduced Footprint Alternative Impact
Impact 3.7-2: Conflict With an Applicable GHG Emissions Reduction Plan, Policy or Regulation	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Hazards and Hazardous Materials				
Impact 3.8-1: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.8-2: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.8-3: Emit or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.8-4: Create a Significant Hazard to the Public or the Environment by Being Located on a Site Included on the Cortese List	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.8-5: Impair Implementation or Physically Interfere with an Adopted Emergency Response or Evacuation Plan	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Hydrology and Water Quality				
Impact 3.9-1: Violate Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface or Ground Water Quality during Project Construction	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.9-2: Violate Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface or Ground Water Quality during Project Operations	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.9-3: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.9-4: Substantially Alter Drainage Patterns of the Project Site Such That Substantial Erosion and Siltation, On- or Off-Site Flooding, Polluted Runoff, or an Exceedance of the Capacity of Stormwater Drainage Systems Would Occur	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.9-5: Conflict with or Obstruct implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Land Use and Planning				
Impact 3.10-1: Conflict with Applicable Land Use Plan, Policy, or Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect	Less than significant	Less than significant (+)	Less than significant (=)	Less than significant (=)
Noise and Vibration				
Impact 3.11-1: Generate Substantial Temporary (Construction) Noise	Significant and unavoidable	No impact (-)	Significant and unavoidable (=)	Significant and unavoidable (=)
Impact 3.11-2: Generate Substantial Temporary (Construction) Vibration Levels	Less than significant with mitigation	No impact (-)	Less than significant with mitigation (=)	Less than significant with mitigation (=)

Environmental Topic	Project Impact	No Project Alternative Impact	Alternative A: Off--Site Alternative Impact	Alternative B: Reduced Footprint Alternative Impact
Impact 3.11-3: Generate Substantial Increase in Long-Term (Traffic) Noise Levels	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.11-4: Exposure of Existing Sensitive Receptors to New Stationary Noise Sources	Significant and unavoidable	No impact (-); avoids the project's significant and unavoidable impact	Significant and unavoidable (=)	Significant and unavoidable (=)
Population, Employment, and Housing				
Impact 3.12-1: Induce Substantial Unplanned Population Growth, Either Directly or Indirectly	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Public Services and Recreation				
Impact 3.13-1: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Fire Protection Facilities, to Maintain Acceptable Service Ratios	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.13-2: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Police Protection Facilities, to Maintain Acceptable Service Ratios	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.13-3: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered School Facilities, to Maintain Acceptable Service Ratios	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.13-4: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Library Facilities, to Maintain Acceptable Service Ratios	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.13-5: Result in Substantial Deterioration of Neighborhood and Regional Parks, or Require Construction or Expansion of Recreational Facilities	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Transportation				
Impact 3.14-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.14-2: Conflict or be inconsistent with CEQA Guidelines 15064.3, subdivision (b)	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.14-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.14-4: Result in inadequate emergency access.	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Utilities and Service Systems				
Impact 3.15-1: Require or Result in the Relocation or Construction of New or Expanded Utility Infrastructure That Would Cause Significant Environmental Effects	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)

Environmental Topic	Project Impact	No Project Alternative Impact	Alternative A: Off--Site Alternative Impact	Alternative B: Reduced Footprint Alternative Impact
Impact 3.15-2: Have Sufficient Water Supplies to Serve the Project and Reasonably Foreseeable Future Development During Normal, Dry, and Multiple Dry Years	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.15-3: Result in a Determination by the Wastewater Treatment Provider That It Has Adequate Capacity to Serve the Project's Projected Demand in Addition to Existing Commitments	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.15-4: Generate Solid Waste in Excess of State or Local Standards or in Excess of the Capacity of Local Infrastructure or Otherwise Impair the Attainment of Solid Waste Reduction Goals or Requirements	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Wildfire				
Impact 3.16-1: Substantially Impair an Adopted Emergency Response Plan or Emergency Evacuation Plan	Less than significant	No impact (-)	Less than significant (=)	Less than significant (-)
Impact 3.16-2: Exacerbate Wildfire or Uncontrolled Spread of Wildfire Due to Slope, Prevailing Winds, and Other Factors	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.16-3: Require the Installation or Maintenance of Associated Infrastructure (Such as Roads, Fuel Breaks, Emergency Water Sources, Power Lines, or Other Utilities) That May Exacerbate Fire Risk or That May Result in Temporary or Ongoing Impacts to the Environment	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)
Impact 3.16-4: Expose People or Structures to Significant Risks, Including Downslope or Downstream Flooding or Landslides, as a Result of Runoff, Post-Fire Slope Instability, or Drainage Changes	Less than significant	No impact (-)	Less than significant (=)	Less than significant (=)

Notes:
(-) Lesser impact than that of the project
(=) Similar impact to that of the project
(+) Greater impact than that of the project

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the project and the alternatives, State CEQA Guidelines Section 15126.6 requires that an "environmentally superior" alternative be selected and the reasons for such a selection be disclosed. In general, the environmentally superior alternative is the alternative to the project that would be expected to generate the least number of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative to the project selected may not be the alternative to the project that best meets the goals or needs of UC Berkeley. Because the State CEQA Guidelines Section 15126.6(c) requires an evaluation of a reasonable range of alternatives to the project, the project under consideration cannot be identified as the environmentally superior alternative.

The No Project Alternative, described above in Section 6.3.1, would avoid all adverse impacts resulting from construction and operation of the project, Alternative A: Off-Site Alternative, and Alternative B: Reduced Footprint Alternative. Therefore, the No Project Alternative is the least impactful and therefore environmentally superior alternative. However, when the environmentally superior alternative is the No Project Alternative, State CEQA Guidelines Section 15126(d)(2) requires selection of an environmentally superior alternative from among the other alternatives that were evaluated.

As shown in Table 6-1, the Reduced Footprint Alternative would avoid the significant and unavoidable impact of the project on historical resources because it would avoid demolition of two historical resources. In addition, impacts related to air quality, energy, GHG emissions and climate change, hazards and hazardous materials (emergency response and evacuation), population and housing, public services and recreation, transportation, utilities and service systems, wildfire (emergency response) would be less under the Reduced Footprint Alternative because the building footprint is smaller and the net increase in employees would be smaller than that of the project. However, the closest noise-sensitive residential receptors would experience the same increases in noise levels from both the project and the Reduced Footprint Alternative. Therefore, the Reduced Footprint Alternative would not avoid the significant and unavoidable impacts of the project related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources. Overall, the Reduced Footprint Alternative would be less impactful than the project.

Like the Reduced Footprint Alternative, the Off-Site Alternative would avoid the significant and unavoidable impact of the project on historical resources because it would avoid demolition of two historical resources. Under the Off-Site Site Alternative, operational impacts related to air quality, energy, GHG emissions and climate change, hazards and hazardous materials (emergency response and evacuation), population and housing, public services and recreation, transportation, utilities and service systems, wildfire (emergency response) would be similar to the impacts of the project because the same number of new employees would be generated. The closest noise-sensitive residential receptors, which are approximately 40 feet from the Off-Site Alternative site, would be exposed to similar increases in noise levels that would be experienced by noise-sensitive residential receptors under the project and under the Reduced Footprint Alternative. Therefore, like the Reduced Footprint Alternative, the Off-Site Footprint Alternative would not avoid the significant and unavoidable impacts of the project related to generating substantial temporary construction noise and exposing sensitive receptors to new stationary noise sources. The Off-Site Alternative would result in slightly greater impacts than the project and the Reduced Footprint Alternative related to air quality, energy, and GHG emissions because of the slightly larger scale of demolition activities. Therefore, although the Off-Site Alternative would avoid the significant impact to historic resources, it would increase other impacts and would not be considered the environmentally superior alternative.

Because the Reduced Footprint Alternative would both avoid demolition of two historic resources and result in reduced operational impacts compared to the project given the smaller increase in net employees, the Reduced Footprint Alternative would be the environmentally superior alternative. However, as discussed in Section 6.3.2, this alternative would be less effective at meeting the basic project objectives as compared to the project. Regarding the size of the project, the Reduced Footprint Alternative would reduce the area that could be used for research and office space by almost 50 percent when compared to the area that would be available under the project. As discussed in Section 6.3.3, the ideal configuration for the North Building is a minimum length to width ratio of 2:1 and the building's efficiency, or usable space, would be reduced as the building length is reduced. In addition, the reduced North Building would not provide sufficient space to accommodate both a loading dock and parking on the ground floor. Therefore, this alternative would not provide the needed 450,000 gross square feet of research and laboratory space and would not maximize the capacity of the existing project site. Consequently, the Reduced Footprint Alternative would not address UC Berkeley's critical programmatic needs.

This page intentionally left blank.

7 LIST OF PREPARERS

Ascent Environmental, Inc. (CEQA Compliance)

Chris Mundhenk .... Principal

Greta Brownlow .... Project Manager

Yingying Cai .... Assistant Project Manager

Amber Grady .... Archaeological, Historic, and Tribal Cultural Resources

Alta Cunningham .... Archaeological, Historic, and Tribal Cultural Resources, Senior Review

Reida Kahn .... Aesthetics; Air Quality; Greenhouse Gas Emissions; Energy; Public Services and Recreation; Wildfire

Yingying Cai .... Aesthetics; Geology and Soils; Land Use and Planning; Population and Housing

Nicole Greenfield .... Hazards and Hazardous Materials; Hydrology and Water Quality

Jing Qian .... Air Quality; Greenhouse Gas Emissions; Energy; Health Risk Assessment Modeler

Matt McFalls .... Air Quality; Greenhouse Gas Emissions; Energy

Elena Savignano .... Noise and Vibration

Honey Walters .... Air Quality; Greenhouse Gas Emissions; Energy; Noise and Vibration, Senior Review

Allison Fuller .... Biological Resources

Alyssa Luna .... GIS Specialist

Gayiety Lane .... Publishing Specialist

Michele Mattei .... Publishing Specialist

Riley Smith .... Publishing Specialist

Brian Perry .... Graphic Specialist

Jim Merk .... Senior Editor

TECHNICAL SUPPORT

Architectural Resources Group .... Historic Resources Evaluation

Kittelson & Associates .... Transportation Analysis

RWDI .... Pedestrian Wind Hazards Study

This page intentionally left blank.

8 REFERENCES

Executive Summary

No references cited.

Chapter 1 Introduction

No references cited.

Chapter 2 Project Description

AC Transit. 2023. Maps & Schedules. Available at: https://www.actransit.org/maps-schedules. Accessed November 1, 2023.

City of Berkeley. 2023 (January). List of Designated City Landmarks, Structures of Merit & Historic Districts.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2022 (August 26). Certificate of Seismic Performance Level for the University Hall.

Chapter 3 Environmental Setting, Impacts, and Mitigation Measures

City of Berkeley. 2002 (April 23). *City of Berkeley General Plan*.

Section 3.1 Aesthetics

California Department of Transportation. 2023. State Scenic Highway Map. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed November 20, 2023.

Caltrans. *See* California Department of Transportation.

City of Berkeley. 1996 (November). *University Avenue Strategic Plan*. Available: https://berkeleyca.gov/your-government/our-work/adopted-plans/university-avenue-strategic-plan. Accessed December 6, 2023.

———. 2002 (April 23). *City of Berkeley General Plan: A Guide for Public Decision-Making*. Available: https://berkeleyca.gov/your-government/our-work/adopted-plans/general-plan. Accessed November 24, 2023.

———. 2012a (March 20). *City of Berkeley 2012 Downtown Area Plan*. Available: https://berkeleyca.gov/sites/default/files/2022-03/Downtown-Area-Plan.pdf. Accessed November 24, 2023.

———. 2012b. *Downtown Berkeley Design Guidelines*. Available: https://berkeleyca.gov/sites/default/files/2022-02/Downtown-Berkeley-Design-Guidelines-2012.pdf. Accessed November 24, 2023.

UC. *See* University of California.

UC Berkeley. *See* University of California, Berkeley.

University of California. 1985. Policy for Independent Design and Cost Review of Building Plans. Available: https://policy.ucop.edu/doc/3100623/IndDesignCostReviewBuildingPlans. Accessed November 20, 2023.

University of California, Berkeley. 2020. UC Berkeley Campus Design Standards. Section 26 56 00, Exterior Lighting, page 343. Available: https://facilities.berkeley.edu/sites/default/files/ucb_campus_design_standards_2020.pdf. Accessed November 20, 2023.

———. 2021. UC Berkeley Physical Design Framework.

———. 2023. Berkeley Capital Strategies. Committees: Planning, Design, and Finance. Available: https://capitalstrategies.berkeley.edu/committees. Accessed November 20, 2023.

Section 3.2 Air Quality

BAAQMD. *See* Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 2017. Clean Air Plan. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf. Accessed December 4, 2023.

———. 2022a. CEQA Guidelines. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed December 4, 2023.

———. 2022b. Mobile Source Screening Map. Available: https://mtc.maps.arcgis.com/apps/instant/sidebar/index.html?appid=c5f9b1a40326409a89076bdc0d95e429. Accessed January 18, 2024.

———. 2023. Stationary Source Screening Map. Available: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3. Accessed January 18, 2024.

California Air Resources Board. 2000 (October). Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.

———. 2013. California Almanac of Emissions and Air Quality—2013 Edition. Available: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm. Accessed December 4, 2023.

———. 2016. Ambient Air Quality Standards. Available: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf. Accessed December 4, 2023.

———. 2020. Naturally Occurring Asbestos. Available: https://www.arb.ca.gov/toxics/asbestos/asbestos.htm. Accessed January 22, 2024.

———. 2023. Overview: Diesel Exhaust & Health. Available: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health. Accessed September 27, 2023.

CARB. See California Air Resources Board.

EPA. See US Environmental Protection Agency.

Metropolitan Transportation Commission. 2021 (October). Plan Bay Area 2050. Available: https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf. Accessed December 5, 2023.

MTC. *See* Metropolitan Transportation Commission.

UC Berkeley. *See* University of California, Berkeley.

US Environmental Protection Agency. 2023a. Criteria Air Pollutants. Available: https://www.epa.gov/criteria-air-pollutants. Accessed December 4, 2023.

———. 2023b. Nonattainment Areas for Criteria Pollutants (Green Book). Available: https://www.epa.gov/green-book. Accessed December 4, 2023.

University of California, Berkeley. 2020 (November). UC Berkeley Sustainability Plan. Available: https://sustainability.berkeley.edu/sites/default/files/uc_berkeley_sustainability_plan_2020_1.pdf. Accessed December 4, 2023.

———. 2023. Sustainable Practices. Available: https://policy.ucop.edu/doc/3100155/SustainablePractices. Accessed December 4, 2023.

Western Regional Climate Center. 2002. Average Wind Direction. Available: http://www.wrcc.dri.edu/climatedata/climtables/westwinddir/. Accessed January 4, 2017.

———. 2016. Period of Record Monthly Climate Summary. Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7630. Accessed January 4, 2017.

WRCC. *See* Western Regional Climate Center.

Section 3.3 Biological Resources

American Bird Conservancy. 2015. Bird-Friendly Building Design. Available: https://abcbirds.org/wp-content/uploads/2015/05/Bird-friendly-Building-Guide_2015.pdf. Accessed January 3, 2024.

Arborwell. 2013. City of Berkeley Urban Forest Tree Inventory. Available: geodata.lib.berkeley.edu. Retrieved January 17, 2024.

California Native Plant Society. 2023. Inventory of Rare and Endangered Plants of California (online edition, v9.5). Available: http://www.rareplants.cnps.org. Retrieved November 3, 2023.

California Natural Diversity Database. 2023. Results of electronic records search. California Department of Fish and Wildlife, Biogeographic Data Branch. Retrieved November 3, 2023.

City of Berkeley. 2002. City of Berkeley General Plan Environmental Management Element. Available: https://berkeleyca.gov/sites/default/files/documents/11_Environmental%20Management%20Element-FINAL.pdf. Accessed November 14, 2023.

CNDDB. *See* California Natural Diversity Database.

CNPS. *See* California Native Plant Society.

Cockrell, R. A. 1976. Trees of the Berkeley Campus. Division of Agricultural Sciences, University of California. Sale Publication 4067.

Loss, S. R., T. Will, S. S. Loss, and P. P. Marra. 2014. "Bird-Building Collisions in the United States: Estimates of Annual Mortality and Species Vulnerability." The Condor 116: 8–23.

University of California, Berkeley. 2023. UC Berkeley Cal Falcons History. Available: https://calfalcons.berkeley.edu/history/. Accessed November 14, 2023.

UC Berkeley. *See* University of California, Berkeley.

US Fish and Wildlife Service. 2023. Information for Planning and Consultation electronic records search. Available: https://ecos.fws.gov/ipac/. Accessed November 3, 2023.

USFWS. *See* US Fish and Wildlife Service.

Section 3.4 Cultural and Historical Resources

Archives & Architecture, LLC. 2015 (May). *Shattuck Avenue Commercial Corridor Historic District Context and Survey*.

Architectural Resources Group. 2024 (January). Historic Resource Evaluation University Hall, University of California, Berkeley.

ARG. *See* Architectural Resources Group.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2021 (March 8). UC Berkeley Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report. Prepared by Placeworks. Available: https://capitalstrategies.berkeley.edu/planning-documents. Accessed October 23, 2023.

Section 3.5 Energy

AFDC. *See* Alternative Fuels Data Center.

Alternative Fuels Data Center. 2023. Available: https://afdc.energy.gov/stations/states. Accessed December 26, 2023.

California Air Pollution Control Officers Association. 2022. California Emissions Estimator Model Version 2022.1. Available: https://caleemod.com/. Accessed January 30, 2024.

California Air Resources Board. 2022. EMFAC 2021 model. Available: https://ww2.arb.ca.gov/our-work/programs/msei/emfac2021-model-and-documentation. Accessed January 30, 2024.

California Energy Commission. 2019. *2019 California Energy Efficiency Action Plan*. Available: https://www.energy.ca.gov/filebrowser/download/1900. Accessed December 26, 2023.

———. 2023a. Building Energy Efficiency Standards. Available: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards. Accessed December 26, 2023.

———. 2023b. California Retail Fuel Outlet Annual Reporting (CEC-A15) Results. Available: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting. Accessed December 26, 2023.

CARB. *See* California Air Resources Board.

CAPCOA. *See* California Air Pollution Control Officers Association.

CEC. *See* California Energy Commission.

EIA. *See* US Energy Information Administration.

EPA. *See* US Environmental Protection Agency.

Pacific Gas and Electric Company. 2023. 2022 Power Content Label. Available: https://www.pge.com/content/dam/pge/docs/account/billing-and-assistance/bill-inserts/1023-Power-Content-Label.pdf. Accessed December 26, 2023.

PG&E. *See* Pacific Gas and Electric Company.

UC Berkeley. *See* University of California, Berkeley.

UCOP. *See* University of California Office of the President.

University of California, Berkeley. 2009. *Climate Action Plan*. Available: https://sustainability.berkeley.edu/sites/default/files/2009_UCB_Climate_Action_Plan.pdf. Accessed January 9, 2024.

———. 2016 (December) (minor update August 2017). *2025 Carbon Neutrality Planning Framework. A report to inform greenhouse gas emission reduction strategies.* Available: https://sustainability.berkeley.edu/sites/default/files/uc_berkeley_2025carbonneutralityplanningframework_2016.pdf. Accessed December 27, 2023.

———. 2020. *UC Berkeley Campus Design Standards*. Section 01 81 13, Sustainable Design Requirements, pages 90-91. Available: https://facilities.berkeley.edu/sites/default/files/ucb_campus_design_standards_2020.pdf. Accessed December 27, 2023.

———. 2023 (July). *Policy on Sustainable Practices*. Available: https://policy.ucop.edu/doc/3100155/SustainablePractices. Accessed December 27, 2023.

University of California Office of the President. 2008 (July). *UC Strategic Energy Plan. Final Report*. Prepared by Newcomb Anderson McCormick, Inc. Available: https://www.ucop.edu/sustainability/_files/energy/ucsep_ucsf_mc.pdf. Accessed December 27, 2023.

US Environmental Protection Agency. 2023. Available: AP-42 Emissions Factors for Greenhouse Gas Inventories. Available: https://www.epa.gov/system/files/documents/2023-03/ghg_emission_factors_hub.pdf. Accessed January 30, 2024.

US Energy Information Administration. 2023. California Energy Consumption by End-Use Sector, 2021. Available: https://www.eia.gov/state/?sid=CA#tabs-2. Accessed December 27, 2023.

Section 3.6 Geology and Soils

A3GEO. 2023 (November 27). DRAFT Geotechnical Investigation Report – Berkeley ClimatEnginuity Hub, Addison Street and Oxford Street Berkeley, California.

Alan Kropp & Associates. 2020. Geology and Soils Data, UC Berkeley – 2021 LRDP EIR. Appendix H. Berkeley, CA.

Blackwell, E., M. Shirzaei, C. Ojha, and S. Werth. 2020. "Tracking California's Sinking Coast from Space: Implications for Relative Sea-Level Rise." *Science Advances* 6 (31). Available: https://advances.sciencemag.org/content/6/31/eaba4551#:~:text=Subsidence%20occurs%20with%20rates%20exceeding,mm%2Fyear%20in%20Southern%20California. Accessed November 1, 2023.

California Geological Survey. 2023. Earthquake Zones of Required Investigation – Interactive Map. Available: https://maps.conservation.ca.gov/cgs/EQZApp/app/. Accessed November 8, 2023.

CGS. *See* California Geological Survey.

East Bay Municipal Utility District. 2022 (January). *East Bay Plain Subbasin Groundwater Sustainability Plan*.

EBMUD. *See* East Bay Municipal Utility District.

Graymer, R. W. 2000. Geologic Map and Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California.

UC. *See* University of California.

UCMP. *See* University of California Museum of Paleontology

University of California. 2021. University of California – Seismic Safety Policy.

University of California Museum of Paleontology. 2023. UCMP Locality Search. Available: https://ucmpdb.berkeley.edu/loc.html. Accessed November 8, 2023.

US Geological Survey. 2015 (March). UCERF3: A New Earthquake Forecast for California's Complex Fault System.

USGS. *See* US Geological Survey.

Section 3.7 Greenhouse Gas Emissions and Climate Change

ABAG and MTC. *See* Association of Bay Area Governments and Metropolitan Transportation Commission.

Association of Bay Area Governments and Metropolitan Transportation Commission. 2021 (October 21). Plan Bay Area 2050.

———. 2022 (January 28). Plan Bay Area 2050 Alameda County Factsheet.

BAAQMD. *See* Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 2017. Final 2017 Clean Air Plan, Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Available: https://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans. Accessed January 9, 2024.

———. 2022. 2022 CEQA Guidelines. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed December 11, 2023.

California Air Resources Board. 2018a. SB 375 Regional Greenhouse Gas Emissions Reduction Targets. Approved by the California Air Resources Board March 22, 2018. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/SB375_Final_Target_Staff_Report_%202018_Resolution_18-12.pdf. Accessed December 14, 2023.

———. 2018b. 2018 ZEV Action Plan. Available: https://business.ca.gov/wp-content/uploads/2019/12/2018-ZEV-Action-Plan-Priorities-Update.pdf. Accessed December 14, 2023.

———. 2022 (November). Evaluation of the Association of Bay Area Governments' and Metropolitan Transportation Commission's SB 375 2021 Sustainable Communities Strategy. Available:

https://ww2.arb.ca.gov/sites/default/files/2023-03/ABAGMTCSCS-Report-2022-ADA.pdf. Accessed December 14, 2023.

California Energy Commission. 2021. Energy Commission Adopts Updated Building Standards to Improve Efficiency, Reduce Emissions from Homes and Businesses. Available: https://www.energy.ca.gov/news/2021-08/energy-commission-adopts-updated-building-standards-improve-efficiency-reduce. Accessed December 14, 2023.

California Natural Resources Agency. 2018 (January). Safeguarding California Plan: 2018 Update. Available: http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf. Accessed December 14, 2023.

CARB. *See* California Air Resources Board.

CEC. *See* California Energy Commission.

CNRA. *See* California Natural Resources Agency.

Governor's Office of Planning and Research, California Energy Commission, and California Natural Resources Agency. 2018 (August). California's Fourth Climate Change Assessment.

Gould, S., and K. Dervin. 2012. Climate Action for Health: Integrating Public Health into Climate Action Planning. California Department of Public Health.

Intergovernmental Panel on Climate Change. 2007. Summary for Policymakers. Available: https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-spm-1.pdf. Accessed January 17, 2024.

———. 2013. Chapter 6, Carbon and Other Biogeochemical Cycles. Pages 465–570 in Climate Change 2013: The Physical Science Basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed December 14, 2023.

———. 2021. Sixth Assessment Report: Summary for Policymakers. Available: https://www.ipcc.ch/report/ar6/wg1/chapter/summary-for-policymakers/. Accessed December 14, 2023.

IPCC. *See* Intergovernmental Panel on Climate Change.

McMichael, A. J., and E. Lindgren. 2011. "Climate Change: Present and Future Risks to Health, and Necessary Responses." Journal of Internal Medicine 270 (5): 401–413.

Metropolitan Transportation Association/Association of Bay Area Governments. 2021. Plan Bay Area 2050. Available: https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf. Accessed January 17, 2024.

MTC/ABAG. *See* Metropolitan Transportation Association/Association of Bay Area Governments.

OPR. *See* Governor's Office of Planning and Research.

Ostro, B., S. Rauch, and S. Green. 2011. "Quantifying the Health Impacts of Future Changes in Temperature in California." Environmental Research 111 (8): 1258–1264. Available: https://www.sciencedirect.com/science/article/abs/pii/S001393511100212X. Accessed December 14, 2023.

Pierce, D. W., J. F Kalansky, and D. R. Cayan. 2018. Climate, Drought, and Sea Level Rise Scenarios for California's Fourth Climate Change Assessment. California Energy Commission. Available: https://www.energy.ca.gov/sites/default/files/2019-11/Projections_CCCA4-CEC-2018-006_ADA.pdf. Accessed December 14, 2023.

UC Berkeley. *See* University of California, Berkeley.

UCOP. *See* University Office of the President.

United Nations. 2015. Paris Agreement. Available: https://unfccc.int/sites/default/files/english_paris_agreement.pdf. Accessed December 14, 2023.

University of California, Berkeley. 2009. Climate Action Plan. Available: https://sustainability.berkeley.edu/sites/default/files/2009_UCB_Climate_Action_Plan.pdf. Accessed January 9, 2024.

———. 2020 (November). Uc Berkeley Sustainability Plan.

———. 2024. Greenhouse Gas Inventory. Available: https://sustainability.berkeley.edu/carbon-solutions/greenhouse-gas-inventory. Accessed January 9, 2024.

University Office of the President. 2023 (July). Policy on Sustainable Practices. Available: https://policy.ucop.edu/doc/3100155/SustainablePractices. Accessed December 27, 2023.

US Global Change Research Program. 2016. The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment.

Wade, Samuel. Branch chief. Transportation Fuels Branch, Industrial Strategies Division, California Air Resources Board, Sacramento, CA. June 30, 2017—e-mail to Austin Kerr of Ascent Environmental regarding whether the Low Carbon Fuel Standard applies to fuels used by off-road construction equipment.

Section 3.8 Hazards and Hazardous Materials

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2008. Very High Fire Hazard Severity Zones in LRA, As Recommended by CAL FIRE. Available: https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-map/upload-1/berkeley.pdf. Accessed August 23, 2023.

CalEPA. *See* California Environmental Protection Agency.

California Department of Toxic Substances Control. 2023. EnviroStor. Retrieved from: https://www.envirostor.dtsc.ca.gov/public/. Accessed October 19, 2023.

California Environmental Protection Agency. 2016a. Sites Identified with Waste Constituents above Hazardous Waste Levels Outside the Waste Management Unit. Available: https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf. Accessed October 19, 2023.

———. 2016b. List of "active" CDO and CAO from Water Board. Retrieved from: https://calepa.ca.gov/sitecleanup/corteselist/. Accessed October 19, 2023.

———. 2023. Cortese List: Section 65962.5(a). Available: https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/. Accessed October 19, 2023.

City of Berkeley. 2002 (April). City of Berkeley General Plan: A Guide for Public Decision-Making. Retrieved from: https://berkeleyca.gov/your-government/our-work/adopted-plans/general-plan. Accessed October 23, 2023.

———. 2011 (June 13). Emergency Access and Evacuation Network.

———. 2016. City of Berkeley 2016 Emergency Operations Plan – Base Plan.

DTSC. *See* California Department of Toxic Substances Control.

Partner Engineering and Science. 2023. Phase I Environmental Site Assessment. Prepared for Addison Labs Foundation, San Francisco, CA.

State Water Resources Control Board. 2023. GeoTracker. Retrieved from: https://geotracker.waterboards.ca.gov/. Accessed October 19, 2023.

SWRCB. *See* State Water Resources Control Board.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2021a (July). UC Berkeley Long Range Development Plan. Retrieved from: https://capitalstrategies.berkeley.edu/planning-documents. Accessed October 23, 2023.

———. 2021b (March 8). UC Berkeley Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report. Retrieved from: https://capitalstrategies.berkeley.edu/planning-documents. Accessed October 23, 2023.

Section 3.9 Hydrology and Water Quality

California Department of Water Resources. 2023. SGMA Basin Prioritization Dashboard. Retrieved from: https://gis.water.ca.gov/app/bp-dashboard/final/#. Accessed October 23, 2023.

DWR. *See* California Department of Water Resources.

East Bay Municipal Utility District. 2021. Urban Water Management Plan 2020. Retrieved from: https://www.ebmud.com/water/about-your-water/water-supply/urban-water-management-plan. Accessed November 15, 2023.

East Bay Municipal Utility District and City of Hayward. 2022 (January). East Bay Plain Subbasin Groundwater Sustainability Plan. Retrieved from: https://www.ebmud.com/water/about-your-water/water-supply/groundwater-sustainability-agencies/east-bay-plain-subbasin-gsp-documents. Accessed October 23, 2023.

EBMUD. *See* East Bay Municipal Utility District.

EBMUD and City of Hayward. See East Bay Municipal Utility District and City of Hayward.

Partner Engineering and Science. 2023. Phase I Environmental Site Assessment. Prepared for Addison Labs Foundation, San Francisco, CA.

San Francisco Bay Regional Water Quality Control Board. 2017. Category 5, 2016 California 303(d) List of Water Quality Limited Segments. Available: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/2016_303d/category5_report.shtml. Accessed October 24, 2023.

———. 2023 (March). Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin. Adopted in April 1975; reflects amendments through March 7, 2023. Retrieved from: https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html. Accessed October 24, 2023.

San Francisco Bay RWQCB. See San Francisco Bay Regional Water Quality Control Board.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2021a (July). UC Berkeley Long Range Development Plan. Retrieved from: https://capitalstrategies.berkeley.edu/planning-documents. Accessed October 23, 2023.

———. 2021b (March 8). UC Berkeley Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report. Retrieved from: https://capitalstrategies.berkeley.edu/planning-documents. Accessed October 23, 2023.

Section 3.10 Land Use and Planning

City of Berkeley. 1996 (November). University Avenue Strategic Plan. Available: https://berkeleyca.gov/your-government/our-work/adopted-plans/university-avenue-strategic-plan. Accessed December 6, 2023.

———. 2002 (April 23). City of Berkeley General Plan: A Guide for Public Decision-Making. Available: https://berkeleyca.gov/your-government/our-work/adopted-plans/general-plan. Accessed November 6, 2023.

———. 2012. City of Berkeley 2012 Downtown Area Plan. Available: https://berkeleyca.gov/your-government/our-work/adopted-plans/downtown-area-plan. Accessed November 6, 2023.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2021a (July). UC Berkeley Long Range Development Plan 2021. Available: https://capitalstrategies.berkeley.edu/planning-documents. Accessed December 6, 2023.

———. 2021b. UC Berkeley Physical Design Framework. Available: https://capitalstrategies.berkeley.edu/planning-documents. Accessed December 6, 2023.

———. 2021c (March 8). UC Berkeley Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report. Prepared by Placeworks. Available: https://capitalstrategies.berkeley.edu/planning-documents. Accessed December 6, 2023.

Section 3.11 Noise and Vibration

Ascent 2023 (November). Noise Technical Study for the 5037 Patata Street Industrial Development Project. Prepared for the City of South Gate, South Gate, CA.

California Department of Transportation. 2013 (September). *Technical Noise Supplement.* California Department of Transportation Division of Environmental Analysis. Sacramento, CA. Prepared by ICF Jones & Stokes. Available: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf. Accessed December 2023.

———. 2020 (April). *Transportation and Construction Vibration Guidance Manual.* Available: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf. Accessed December 2023.

Caltrans. *See* California Department of Transportation

City of Berkeley. 2023. Berkeley Municipal Code Chapter 13.40. Available: https://berkeley.municipal.codes/BMC/13.40. Accessed December 2023.

EPA. *See* US Environmental Protection Agency.

Engineering ToolBox, The. 2005. *Required Voice Level at Distance*. Available at: https://www.engineeringtoolbox.com/voice-level-d_938.html. Accessed January 4, 2024.

Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment Manual*. Washington, DC. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed December 2023.

FHWA. *See* Federal Highway Administration.

FTA. *See* Federal Transit Administration.

Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5. Available for download at https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/purchasing_tnm/. Accessed April 4, 2017.

———. 2006 (January). *Roadway Construction Noise Model User's Guide*. Washington, D.C. Prepared by the Research and Innovative Technology Administration, Cambridge, MA.

Lennox. 2018. 16ACX Merit Series Product Specifications.

Toolbox. *See* The Engineering ToolBox.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2021 (March). *Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report 2021*. Available: https://drive.google.com/file/d/143_5op7wFUkjqU3XxqmUwy4UgnOr2Sjr/view. Accessed January 2024.

———. 2020 (February). UC Berkeley Campus Design Standards. Available: https://facilities.berkeley.edu/sites/default/files/ucb_campus_design_standards_2020.pdf. Accessed December 2023.

US Environmental Protection Agency. 1978 (November). *Protective Noise Levels*. Washington, DC.

Section 3.12 Population and Housing

ABAG and MTC. *See* Association of Bay Area Governments and Metropolitan Transportation Commission.

Association of Bay Area Governments and Metropolitan Transportation Commission. 2020. RHNA Maps: J3 Jobs-Housing Balance. Available at: https://abag.ca.gov/rhna-maps. Accessed November 6, 2023.

———. 2021a (October 21). Plan Bay Area 2050.

———. 2021b (January 21). Plan Bay Area 2050: Projected Household and Job Growth, by County.

———. 2022 (January 28). Plan Bay Area 2050 Alameda County Factsheet.

California Department of Finance. 2023a (July 19). Report P-2A: Total Population Projections, 2020-2060 California and Counties. Microsoft Excel File.

———. 2023b (January 1). Table 2: E-5 City/County Population and Housing Estimates, 1/1/2021 to 1/1/2023. Microsoft Excel File.

City of Berkeley. 2023 (February 17). City of Berkeley Housing Element Update 2023-2031.

DOF. *See* California Department of Finance.

UC. *See* University of California.

UC Berkeley. *See* University of California, Berkeley.

University of California. 2013 (May 1). Relocation Assistance Act Policy for Real Estate Acquisitions and Leases.

University of California, Berkeley. 2021a (July). UC Berkeley Long Range Development Plan 2021.

———. 2021b (March 8). UC Berkeley Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report. Prepared by Placeworks.

———. 2023a (March 9). Our Berkeley -Student Enrollment. Available at: https://pages.github.berkeley.edu/OPA/our-berkeley/student-enrollments.html. Accessed November 6, 2023.

———. 2023b (January 17). Our Berkeley -Staff Headcount. Available at: https://pages.github.berkeley.edu/OPA/our-berkeley/staff-headcount.html. Accessed November 6, 2023.

Section 3.13 Public Services and Recreation

Berkeley Public Library. 2018. Fiscal Year Report. Available: https://www.berkeleypubliclibrary.org/sites/default/files/files/inline/annual_report_fy2018.pdf. Accessed October 31, 2023.

———. 2023. Locations & Hours. Available: https://www.berkeleypubliclibrary.org/locations. Accessed October 31, 2023.

Berkeley Unified School District. 2023. About Berkeley Unified School District. Available: https://www.berkeleyschools.net/about-the-district/about/. Accessed October 30, 2023.

———. 2024. Enrollment FAQ. Available: Enrollment FAQ | Berkeley Unified School District (berkeleyschools.net). Accessed January 2, 2024.

Breines, Raphael. Senior Planner. UC Berkeley. November 30, 2023—email to Yingying Cai of Ascent regarding UCPD.

BUSD. *See* Berkeley Unified School District.

California Department of Education. 2023. Data Quest: Enrollment Multi-Year Summary by Grade. Available: https://dq.cde.ca.gov/dataquest/dqcensus/EnrGrdYears.aspx?cds=0161143&agglevel=district&year=2019-20. Accessed October 30, 2023.

California Department of Finance. 2023 (January 1). Table 2: E-5 City/County Population and Housing Estimates, 1/1/2021 to 1/1/2023. Microsoft Excel File.

California Department of Forestry and Fire Protection. 2023. Fire Hazard Severity Zones Maps. Alameda County. Available: https://osfm.fire.ca.gov/fire-hazard-severity-zone-maps-2022/. Accessed October 24, 2023.

City of Berkeley. 2002. General Plan. Open Space and Recreation Element. Available: https://berkeleyca.gov/sites/default/files/documents/08_Open%20Space%20and%20Recreation%20Element-FINAL.pdf. Accessed November 8, 2023.

———. 2014. Fire Districts Map. Available: https://berkeleyca.gov/sites/default/files/2022-02/Berkeley-Fire-Districts-Map.pdf. Accessed October 30, 2023.

———. 2023a. Fiscal Years 2023 and 2024 Proposed Budget. Available: https://berkeleyca.gov/sites/default/files/documents/FY-23-24-Proposed-Budget.pdf. Accessed October 31, 2023.

———. 2023b. Fire Stations. Available: https://berkeleyca.gov/safety-health/fire/fire-stations. Accessed October 30, 2023.

———. 2023c. Fire Department. Available: https://berkeleyca.gov/your-government/about-us/departments/fire-department#:~:text=The%20Berkeley%20Fire%20Department%20protects,readiness%2C%20and%20public%20education%20programs. Accessed October 30, 2023.

DOF *See* California Department of Finance.

Hills Emergency Forum. 2022. Available: HEF Mission/Goals (hillsemergencyforum.org). Accessed October 30, 2023.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2017. Campus Fire Safety Policy. Available: https://campuspol.berkeley.edu/policies/firesafety.pdf. Accessed October 30, 2023.

———. 2021 (July). UC Berkeley – City of Berkeley Settlement Agreement, signed July 27, 2021.

———. 2023a. 2023 Annual Security and Fire Safety Report. Available: https://ucpd.berkeley.edu/sites/default/files/uc_berkeley_asfsr.pdf. Accessed October 30, 2023.

———. 2023b (March 9). Our Berkeley -Student Enrollment. Available at: https://pages.github.berkeley.edu/OPA/our-berkeley/student-enrollments.html. Accessed November 6, 2023.

———. 2023c (January 17). Our Berkeley -Staff Headcount. Available at: https://pages.github.berkeley.edu/OPA/our-berkeley/staff-headcount.html. Accessed November 6, 2023.

University of California, Berkeley, Police Department, Community Service Officer Program. 2023. Available: https://ucpd.berkeley.edu/services/community-service-officer-cso-program. Accessed October 30, 2023.

UCPD. *See* University of California, Berkeley, Police Department.

Section 3.14 Transportation

California Governor's Office of Planning and Research. 2018 (December). Technical Advisory: On Evaluating Transportation Impacts in CEQA. Available: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed January 15, 2024.

Metropolitan Transportation Commission. 2021 (October). Plan Bay Area 2050. Available: https://mtc.ca.gov/sites/default/files/documents/2021-11/Plan_Bay_Area_2050_October_2021.pdf. Accessed January 15, 2024.

MTC. *See* Metropolitan Transportation Commission.

OPR. *See* California Governor's Office of Planning and Research.

RWDI. 2024 (January 11). Pedestrian Wind Study UC Berkeley Innovation Zone.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2021 (July). Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report. Prepared by Placeworks. State Clearinghouse Number: 2020040078. Available: https://drive.google.com/file/d/1ZusEAEx6LTdgXNa6JyUVBVBx0Dq75ZZz/view?usp=sharing. Accessed January 15, 2024.

Section 3.15 Utilities and Service Systems

California Department of Resources Recycling and Recovery. 2022. 2022 Landfill Summary Tonnage Report. Retrieved from: https://www2.calrecycle.ca.gov/LandfillTipFees/. Accessed November 14, 2023.

———. 2023. SWIS Facility/Site Summary, Keller Canyon Landfill (07-AA-0032). Retrieved from: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/228. Accessed November 14, 2023.

California Energy Commission. 2022 (February). Final 2021 Integrated Energy Policy Report. Retrieved from: https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report. Accessed July 31, 2023.

———. 2023a. Clean Energy and Pollution Reduction Act – SB 350. Available: https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350. Accessed July 31, 2023.

———. 2023b. 2022 Building Energy Efficiency Standards for Residential and Nonresidential Buildings: For the 2022 Building Energy Efficiency Standards Title 24, Part 6, and Associated Administrative Regulations in Part 1.

California Public Utilities Commission. 2008 (September). California Long Term Energy Efficiency Strategic Plan. Available: https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/e/5305-eestrategicplan.pdf. Accessed July 31, 2023.

CalRecycle. *See* California Department of Resources Recycling and Recovery

CEC. *See* California Energy Commission.

City of Berkeley. 2002 (April). Environmental Management Element. Available: https://berkeleyca.gov/sites/default/files/documents/11_Environmental%20Management%20Element-FINAL.pdf. Accessed November 14, 2023.

———. 2019. Sewer System Management Plan. Available: https://berkeleyca.gov/sites/default/files/2022-02/Sewer-System-Management-Plan.pdf. Accessed November 17, 2023.

CPUC. *See* California Public Utilities Commission.

East Bay Municipal Utility District. 2012 (April). Water Supply Management Program 2040 Plan. Retrieved from: https://www.ebmud.com/water/about-your-water/water-supply/water-supply-management-program-2040. Accessed November 15, 2023.

———. 2013 (August). Wastewater Control Ordinance. Retrieved from: https://www.ebmud.com/wastewater/collection-treatment/wastewater-control-ordinance-discharge-limits. Accessed November 16, 2023.

———. 2019 (February). Updated Recycled Water Master Plan. Retrieved from: https://www.ebmud.com/water/recycled-water/recycled-water-master-plan. Accessed January 17, 2024.

———. 2021a. Urban Water Management Plan 2020. Retrieved from: https://www.ebmud.com/water/about-your-water/water-supply/urban-water-management-plan. Accessed November 15, 2023.

———. 2021b. Water Shortage Contingency Plan. Retrieved from: https://www.ebmud.com/water/about-your-water/water-supply/urban-water-management-plan. Accessed November 15, 2023.

———. 2022 (March). Sewer System Management Plan. Adopted February 10, 2009; reflects updates through March 3, 2022. Retrieved from: https://www.ebmud.com/wastewater/collection-treatment/sewers. Accessed November 16, 2023.

———. 2023. East Bayshore Recycled Water Project. Available: https://www.ebmud.com/water/recycled-water/current-recycled-water-users/east-bayshore. Accessed November 22, 2023.

EBMUD. *See* East Bay Municipal Utility District.

San Francisco Bay Regional Water Quality Control Board. 2020 (September). Order R2-2020-0024. Available: https://www.waterboards.ca.gov/rwqcb2/board_info/agendas/2020/September/5a_finalTO.pdf. Accessed November 17, 2023.

UC Berkeley. *See* University of California Berkeley

University of California. 2023 (July). Policy on Sustainable Practices. Available: https://policy.ucop.edu/doc/3100155/SustainablePractices. Accessed November 15, 2023.

University of California Berkeley. 2019 (September). UC Berkeley Zero Waste Plan. Available: https://facilities.berkeley.edu/sites/default/files/2019_uc_berkeley_zero_waste_plan_final.pdf. Accessed November 14, 2023.

———. 2021 (March). Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report. Retrieved from: https://capitalstrategies.berkeley.edu/planning-documents. Accessed November 20, 2023.

———. 2023. Resilient Water Plan. Retrieved from: https://capitalstrategies.berkeley.edu/planning-documents. Accessed November 15, 2023.

Section 3.16 Wildfire

Abatzoglou, J. T., and A. P. Williams. 2016 (October 16). "Impact of Anthropogenic Climate Change on Wildfire across Western US Forests." Proceedings of the National Academy of Sciences 113 (42): 11770–11775.

Alameda County. 2012. Alameda County Emergency Operations Plan. Available: https://www.acgov.org/ready/documents/EmergencyOperationsPlan.pdf. Accessed November 13, 2023.

———. 2015. Community Wildfire Protection Plan. Available: https://static1.squarespace.com/static/637666524e88c826676ef6a3/t/63fa9f6abeb7fa049a659a80/1677369195776/CWPP+--+Alameda+County+CWPP+Update_3_2015.pdf. Accessed November 13, 2023.

Balch, J. K., B. A. Bradley, J. T. Abatzoglou, R. C. Nagy, E. J. Fusco, and A. L. Mahood. 2017 (March 14). "Human-Started Wildfires Expand the Fire Niche across the United States." Proceedings of the National Academy of Sciences 114 (11): 2946–2951.

Bedsworth, L., D. Cayan, G. Franco, L. Fisher, and S. Ziaja. (California Governor's Office of Planning and Research, Scripps Institution of Oceanography, California Energy Commission, California Public Utilities Commission). 2018. Statewide Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-013.

Board and CAL FIRE. See State Board of Forestry and Fire Protection and California Department of Forestry and Fire Protection.

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2008. Very High Fire Hazard Severity Zones in LRA, As Recommended by CAL FIRE. Available: https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-map/upload-1/berkeley.pdf. Accessed August 23, 2023.

———. 2023. Fire Hazard Severity Zones Maps. Alameda County. Available: https://osfm.fire.ca.gov/fire-hazard-severity-zone-maps-2022/. Accessed October 24, 2023.

California Governor’s Office of Emergency Services. 2018 (September). California State Hazard Mitigation Plan. Chapter 3, “California’s Mitigation Framework: Goals, Objectives, Strategies, and Priorities.”

CalOES. *See* California Governor’s Office of Emergency Services.

City of Berkeley. 2002. City of Berkeley General Plan. Disaster Preparedness and Safety Element. Available: https://berkeleyca.gov/sites/default/files/documents/07_Disaster%20Preparedness%20and%20Safety%20Element-FINAL_0.pdf. Accessed October 24, 2023.

———. 2011 (June). Emergency Evacuation and Access Network. Available: https://berkeleyca.gov/sites/default/files/documents/Berkeley-Emergency-Access-Evacuation-Routes-06-2011.pdf. Accessed October 24, 2023.

———. 2019 (December). 2019 Local Hazard Mitigation Plan. Available: https://berkeleyca.gov/sites/default/files/2022-01/Local-Hazard-Mitigation-Plan-2019.pdf. Accessed October 24, 2023.

Federal Emergency Management Agency. 2014 (November). Final Hazardous Fire Risk Reduction Environmental Impact Statement East Bay Hills, California. Prepared by CDM Smith. Washington DC.

FEMA. *See* Federal Emergency Management Agency.

Governor’s Office of Planning and Research, California Energy Commission, and California Natural Resources Agency. 2018 (August 27). California’s Changing Climate: A Summary of Key Findings from California’s Fourth Climate Change Assessment. Available: http://www.climateassessment.ca.gov/state/docs/20180827-SummaryBrochure.pdf. Accessed April 24, 2020.

Mann, M. L., E. Batllori, M. A. Moritz, E. K. Waller, P. Berck, A. L. Flint, L. E. Flint, and E. Dolfi. 2016 (April 28). “Incorporating Anthropogenic Influences into Fire Probability Models: Effects of Human Activity and Climate Change on Fire Activity in California.” PLoS One 11 (4): e0153589.

OPR, CEC, and CNRA. See Governor’s Office of Planning and Research, California Energy Commission, and California Natural Resources Agency.

Schoennagel, T., J. K. Balch, H. Brenkert-Smith, P. E. Dennison, B. J. Harvey, M. A. Krawchuck, N. Mietkiewicz, P. Morgan, M. A. Moritz, R. Rasker, M. G. Turner, and C. Whitlock. 2017 (May 2). “Adapt to More Wildfire in Western North American Forests as Climate Changes.” Proceedings of the National Academy of Sciences 114 (18): 4582–4590.

State Board of Forestry and Fire Protection and California Department of Forestry and Fire Protection. 2018 (August 22). 2018 Strategic Fire Plan for California. Available: https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf. Accessed August 24, 2023.

Syphard, A. D., V. C. Radeloff, J. E. Keeley, T. J. Hawbaker, M. K. Clayton, S. I. Stewart, and R. B. Hammer. 2007. “Human Influence on California Fire Regimes.” Ecological Applications 17 (5): 1388–1402.

Syphard, A. D., V. C. Radeloff, N. S. Keuler, R. S. Taylor, T. J. Hawbaker, S. I. Stewart, and M. K. Clayton. 2008. “Predicting Spatial Patterns of Fire on a Southern California Landscape.” International Journal of Wildland Fire 17: 602–613.

UC Berkeley. *See* University of California, Berkeley.

University of California, Berkeley. 2021. UC Berkeley 2021 Long Range Development Plan.

———. 2022. University of California, Berkeley Emergency Operations Plan. Version 7.0. Available: https://oem.berkeley.edu/campus-response/emergency-operations-plan-eop. Accessed October 24, 2023.

Westerling, A. L., H. G. Hidalgo, D. R. Cayan, and T. W. Swetnam. 2006 (August 18). “Warming and Earlier Spring Increase Western US Forest Wildfire Activity.” Science 313 (5789): 940–943.

Chapter 4 Cumulative Impacts

City of Berkeley. 2021 (October 21). Design Review Committee Staff Report: 1951 Shattuck Avenue Final Design Review Follow Up.

———. 2022 (November 28). SB330 Preliminary Application #PLN2022-0067 for 2113-15 Kittredge Street.

———. 2023a. Search Applications – Zoning. Available: https://permits.cityofberkeley.info/CitizenAccess/Cap/CapHome.aspx?module=Planning&TabName=Planning&TabList=Home%7C0%7CBuilding%7C1%7CHousing%7C2%7CPlanning%7C3%7CFire%7C4%7CLicenses%7C5%7CPublicWorks%7C6%7CCurrentTabIndex%7C3. Accessed December 29, 2023 and January 10, 2024.

———. 2023b (December 22). Complete SB 330 Preliminary Development Application Letter for 1899 Oxford Street.

———. 2023c (November 15). SB 330 Preliminary Housing Development Application for 2109a Milvia Street.

———. 2023d (March 30). Zoning Adjustments Board Notice of Decision for 2190 Shattuck Avenue.

DLR Group. 2023 (October 30). HUB At Berkeley Project Plans.

Studio KDA. 2021 (December 7). Berkeley Square (130, 134 Berkeley Square Berkeley, CA) Pre-Applicable Project Plans.

The Real Deal. 2023 (July 14). NX Ventures aims to build 105 apartments near UC Berkeley. Available: https://therealdeal.com/sanfrancisco/2023/07/14/nx-ventures-aims-to-build-105-apartments-near-uc-berkeley/. Accessed December 29, 2023.

UC Berkeley. 2023. Berkeley Capital Strategies – Capital Projects. Available: https://capitalstrategies.berkeley.edu/capital-projects. Accessed December 5, 2023.

Trachtenberg Architects. 2022 (December 12). 1998 Shattuck Pre-Application Project Plans.

Chapter 5 Other CEQA Consideration

No references cited.

Chapter 6 Alternatives

California Department of Toxic Substances Control. 2024. EnviroStor. Retrieved from: https://www.envirostor.dtsc.ca.gov/public/. Accessed January 12, 2024.

DTSC. *See* California Department of Toxic Substances Control.

State Water Resources Control Board. 2024. GeoTracker. Retrieved from: https://geotracker.waterboards.ca.gov/. Accessed January 12, 2024.

SWRCB. See State Water Resources Control Board.

University of California Berkeley. 2021 (March 8). Long Range Development Plan and Housing Projects #1 and #2 Draft Environmental Impact Report. Retrieved from: https://capitalstrategies.berkeley.edu/planning-documents. Accessed October 23, 2023.

———. 2022 (August 26). Certificate of Seismic Performance Level for the University Hall

This page intentionally left blank.

9 LIST OF ABBREVIATIONS

°F	degrees Fahrenheit
2020 Sustainability Plan	UC Berkeley Sustainability Plan
AB 1881	Water Conservation in Landscaping Act
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda-Contra Costa Transit District
ACM	asbestos-containing material
ADA	Americans with Disabilities Act
AES	aesthetics
AF	acre feet
AFY	acre-feet per year
Alameda CTC	Alameda County Transportation Commission
ARG	Architectural Resources Group
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BFD	Berkeley Fire Department
BMC	Berkeley Municipal Code
BPD	Berkeley Police Department
BUA	Biohazard Use Authorization
BUSD	Berkeley Unified School District
C&D	construction and demolition
CAA	federal Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Office of Emergency Services
Cal/OSHA	California Division of Occupational Safety and Health
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency

CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	climate action plan
CARB	California Air Resources Board
CBC	California Building Code
CBP	continuing best practice
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDC	child development centers
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA Guide	*2022 CEQA Guidelines*
CESA	California Endangered Species Act
CFC	California Fire Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHP	California Highway Patrol
CI	carbon intensity
CLEB	Committee for Laboratory and Environmental Biosafety
CMP	congestion management program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CPC	California Plumbing Code
CPUC	California Public Utilities Commission
CREC	controlled recognized environmental condition
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CTC	County Transportation Commission
CWA	Clean Water Act
CWPP	Community Wildfire Protection Plan

dB	decibels
dBA	A-weighted decibels
DGR	Dangerous Good Regulations
diesel PM	diesel particulate matter
DOF	California Department of Finance
DOT	US Department of Transportation
DPR	California Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
DURT	UC Berkeley EH&S Designated Urgent Response Team
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
EH&S	UC Berkeley Office of Environment, Health & Safety
EMS	emergency medical services
EO	Executive Order
EOC	emergency operations center
EOP	emergency operations plan
EPA	US Environmental Protection Agency
EPCRA	Emergency Planning Community Right-to-Know Act
ESA	Endangered Species Act
EV	electric vehicle
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FTA	Federal Transit Administration
FTE	full-time equivalent
GHG	greenhouse gas
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
HAP	hazardous air pollutant
HMBP	hazardous materials business plan
HRA	health risk assessment

HREC	historical recognized environmental condition
Hz	hertz
I-80	Interstate 80
IACUC	Institutional Animal Care Use and Committees
IATA	International Air Transport Association
ICS	Incident Command System
IPaC	Inventory for Planning and Consultation
lb/day	pounds per day
LBP	lead-based paint
LCFS	Low Carbon Fuel Standard
L_{dn}	day-night level
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent continuous sound level
LHMP	Local Hazard Mitigation Plan
L_{max}	maximum sound level
LRA	Local Responsibility Area
LRDP	long range development plan
LU	Land Use
MBTA	Migratory Bird Treaty Act
MCL	maximum containment level
MGD	million gallons per day
MLD	most likely descendant
mph	mile per hour
MPO	metropolitan planning organization
MS4	municipal separate storm sewer system
MTC	Metropolitan Transportation Commission
MTC/ABAG	Metropolitan Transportation Association/Association of Bay Area Governments
$MTCO_2e$	metric tons of carbon dioxide equivalent
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
MWELO	Model Water Efficient Landscape Ordinance

NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAHC	Native American Heritage Commission
NFIP	National Flood Insurance Program
NHTSA	National Highway Traffic Safety Administration
NIH	National Institute of Health
NIMS	National Incident Management System
NIR	Nonionizing radiation
NO	nitric oxide
NO_2	nitrogen dioxide
NOP	notice of preparation
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
OEM	UC Berkeley Office of Emergency Management
OPR	Governor’s Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyls
PCE	particularly tetrachloroethylene
PDA	Priority Development Area
PG&E	Pacific Gas and Electric Company
PM_{10}	respirable particulate matter
PM_2	fine particulate matter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppm	parts per million
PPV	peak particle velocity
PRC	California Public Resources Code
PV	photovoltaic
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
ROG	reactive organic gases

RTP	regional transportation plan
RWQCB	regional water quality control board
SAFE Rule	Safer Affordable Fuel-Efficient Vehicles Rule
SARA Title III	Superfund Amendments and Reauthorization Act
SB 350	Clean Energy and Pollution Reduction Act
SB X7-7	Water Conservation Act of 2009
SB	Senate Bill
SCS	sustainable communities strategy
SCMP	Strawberry Creek Management Plan
SEMS	Standardized Emergency Management System
SFBAAB	San Francisco Bay Area Air Basin
SGMA	California Sustainable Groundwater Management Act
SLF	Sacred Lands File
SO_2	sulfur dioxide
SOV	single-occupant-vehicle
SPL	sound pressure level
SR	State Route
SRA	State Responsibility Area
SSO	sanitary sewer overflows
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TDM	transportation demand management
TMDL	total maximum daily load
TPA	Transit Priority Area
TRAN	transportation
TRU	Transport Refrigeration Unit
UC	University of California
UCERF	Uniform California Earthquake Forecast
UCOP	University of California Office of the President
UCPD	University of California Police Department
UD	Urban Design

US 101	US Route 101
USBR	US Bureau of Reclamation
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
USGBC	US Green Building Council
USGS	US Geological Survey
USS	utilities and service systems
UWMP	urban water management plan
VdB	vibration decibels
VMT	vehicle miles traveled
WDR	Waste Discharge Requirements
WQO	Water Quality Objectives
WSMP	Water Supply Management Program
WUI	Wildland-Urban Interface
ZEV	zero-emission vehicle
ZNE	zero net energy

This page intentionally left blank.