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CAPITAL STRATEGIES
PHYSICAL AND ENVIRONMENTAL PLANNING
300 A & E BUILDING
BERKELEY, CALIFORNIA 94720-1382

February 2019

DRAFT SUPPLEMENTAL EIR

TO THE 2020 LONG RANGE DEVELOPMENT PLAN

ENVIRONMENTAL IMPACT REPORT

Project Title: Upper Hearst Development for the Goldman School of Public Policy and Minor Amendment to the 2020 Long Range Development Plan

Project Location: The approximately one-acre Project site for the Upper Hearst Development (Assessor's Parcel Number 58-2201-9-1) is located at the Upper Hearst and Ridge parking lots on the northwest corner of La Loma Avenue and Hearst Avenue in the City of Berkeley. The site is bounded to the north by Ridge Road and the Cloyne Court Student Cooperative; to the east by La Loma Avenue; to the south by Hearst Avenue; and to the west by the historic Beta Theta Pi house.

County: Alameda County, California

Program EIR: UC Berkeley 2020 Long Range Development Plan EIR, certified by The Regents January 2005, SCH #2003082131; as updated by LRDP Amendment #1 and Addendum #5 to address Climate Change.

1. EXECUTIVE SUMMARY

The California Environmental Quality Act (CEQA) requires lead agencies to disclose and consider the environmental consequences of proposed discretionary projects prior to taking approval action on such projects. As a lead agency, the University of California, Berkeley (UC Berkeley or University) is proposing to construct the mixed-use Upper Hearst Development for the Goldman School of Public Policy (GSPP) (the Upper Hearst Development), and to amend its 2020 Long Range Development Plan (2020 LRDP) to accommodate the proposed housing land use on the Project site (Minor LRDP Amendment). Together, the Upper Hearst Development and amendment to the 2020 LRDP comprise the proposed Project.

This Draft EIR has been prepared to address the environmental effects associated with implementing the proposed Project pursuant to the requirements of CEQA (California Public Resources Code, Section 21000 et seq.), the State CEQA Guidelines (Title 14, California Code of Regulations, Chapter 3, Section 15000 et seq.), and the University of California (UC) procedures for implementing CEQA. As discussed further below, and in accordance with CEQA, this Draft EIR is a Supplemental EIR (SEIR) which is "tiered" from the 2020 Long Range Development Plan Final EIR (State Clearinghouse [SCH] No. 2003082131), certified by The Regents in January 2005, and updated by LRDP Amendment #1 and Addendum #5 to address Climate Change (referred to herein as the 2020 LRDP EIR).

This Executive Summary has been prepared in accordance with CEQA Guidelines Section 15123(b), which states that an EIR should contain a brief summary of the proposed actions and its consequences and should identify (1) each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect; (2) areas of controversy known to the lead agency; and (3) issues to be resolved, including the choice among alternatives and how to mitigate significant effects.

1.1 PROJECT SUMMARY

Proposed Project

The Upper Hearst Development would have both residential and academic components. The residential component of the Upper Hearst Development would be constructed in a new building on top of a new Upper Hearst parking structure, as well as on the adjacent at-grade Ridge parking lot at the corner of Ridge Road and La Loma Avenue. The residential component would consist of up to 150 residential units in a mixture of studio and one- and two-bedroom apartments in a building up to six stories tall. At its maximum height, the residential roofline would be up to approximately 72 feet tall on the Ridge Road (north) side, up to 69 feet on the La Loma Avenue (east) side and up to 87 feet tall on the Hearst Avenue (south) side. Motor vehicles would access the parking structure below the residential building via a driveway from Hearst Avenue. To accommodate the new residential building, the entire Ridge surface parking lot would be demolished. As a result of removing existing parking areas, the Upper Hearst Development would reduce the total number of parking spaces on-site from 407 to an estimated 200, including marked parking stalls and attendant parking capacity.

A separate academic building would be constructed to the immediate east of the existing GSPP building, with a minimum setback of 10 feet from the existing building. To accommodate the academic building, the Upper Hearst parking structure would be demolished. The approximately 37,000 gross square feet of office, classroom, and event space in the academic building would serve GSPP's undergraduate, graduate and Global Executive Education programs. The academic building would be four stories in height over

one subterranean level. The fourth level would provide access to a rooftop terrace. The centerpiece of the design would be a two-story atrium bordered on the exterior by a glass façade. This atrium would face west toward the existing GSPP building located at 2607 Hearst Avenue and would have public space and interaction areas. By the end of the 2022-23 academic year, the academic building would house five permanent staff members and 30 students on an average, year-round basis. The academic building's event space would have a seating capacity of 300 and would accommodate up to 450 visitors at maximum capacity; public and private events would occur periodically during both daytime and evening hours.

The Minor LRDP Amendment would accommodate the proposed housing land use on the Project site. Specifically, the Minor LRDP Amendment would expand the Housing Zone to accommodate residential development on the Project site (see Appendix B).

Please see Section 3, *Project Description*, for additional Project information and plans.

Environmental Analysis

This Draft SEIR has been prepared pursuant to CEQA and the CEQA Guidelines to evaluate the environmental effects of the proposed Project, and to identify feasible mitigation measures and alternatives to reduce or avoid the Project's significant impacts.

The Draft SEIR also establishes an updated population baseline to reflect the existing campus headcount (which is greater than the projections in the 2020 LRDP) and new campus headcount projections through the 2022-23 school year, when increased enrollment at GSPP as a result of the Project would plateau. Despite the growth in campus headcount over 2020 LRDP projections, which led to the new baseline, the analysis in this SEIR demonstrates that the UC Berkeley campus is still operating within the capacity and demand identified and analyzed in the 2020 LRDP EIR for resources such as housing, water, electricity and public services, among others. Moreover, to date, UC Berkeley has accommodated the increased campus headcount completely within the physical development identified in the 2020 LRDP and, in fact, has developed fewer square feet of academic and support space and fewer housing units than what was identified in the 2020 LRDP and analyzed in the 2020 LRDP EIR. Nonetheless, in its response to comments to the 2020 LRDP EIR, UC Berkeley made a commitment to the City of Berkeley that, if enrollment increased beyond the projections set forth in the 2020 LRDP, it would undertake additional review under CEQA.

Consistent with this commitment, the SEIR uses an updated population baseline and, in its environmental analysis of each impact category, takes this updated baseline into account and explains how it factors into and/or affects the environmental analysis and significance conclusions reached in the 2020 LRDP EIR and this SEIR. For some impact categories, such as Aesthetics, Cultural Resources, Land Use, and Tribal Cultural Resources, the analysis of whether the increased headcount would cause environmental impacts hinges on physical development to accommodate an increased headcount. For other impact categories, such as Air Quality, Greenhouse Gas Emissions, Noise, Population, Public Services, and Transportation and Traffic, the analysis of whether the increased headcount would cause environmental impacts hinges on population numbers on the campus. The introductory section of each impact category in Section 6, *Environmental Evaluation*, explains the approach taken to account for the increased campus headcount in that section, and how the increase in campus headcount factors into the impact analysis.

Project Alternatives

In accordance with Section 15126.6 of the State CEQA Guidelines, Section 8 of this Draft SEIR describes alternatives to the proposed Project; compares their potential environmental effects to those of the proposed Project; and discusses their ability to meet the Project objectives. The following summarizes each alternative evaluated in this Draft SEIR.

- No Project Alternative. The No Project Alternative assumes that existing conditions would continue. None of the components of the Upper Hearst Development described in Section 3 would be approved, and the existing Upper Hearst parking structure and surface Ridge Lot would be maintained on the Project site as they currently exist. UC Berkeley would not make changes to the existing environment on-site.
- Off-site Lease Agreement Alternative. Under the Off-site Lease Agreement Alternative, GSPP would meet its need for additional academic capacity for GSPP by leasing space in existing buildings on or near the UC Berkeley campus, instead of constructing the proposed Upper Hearst Development. The Project site would remain in its current state, with the existing Upper Hearst parking structure and Ridge surface parking lot. Although UC Berkeley has not identified specific opportunity sites that are available for leasing, it is assumed that physical space of equal size to the proposed 37,000 square-foot academic building would be available to accommodate an expansion of GSPP's academic facilities. This alternative would not involve the construction or leasing of additional residential space for faculty or students.
- Academic Building Only Alternative. Similar to the Project, the Academic Building Only Alternative would involve construction of an academic building on the Project site. While the proposed academic building would be located on the southwestern portion of the site, adjacent to the Beta Theta Pi house, this alternative would place the academic building on the northern portion of the site, where it would replace the Ridge surface parking lot. No residential building would be constructed. By relocating the new academic building and not constructing a residential building, UC Berkeley would retain the existing Upper Heart parking structure. The new academic building also would be reduced to two stories in height, but it would have a similar floor area to the proposed Project (37,000 square feet), by occupying a larger building footprint.
- Reduced Scale Alternative. This Reduced Scale Alternative would reduce the proposed scale of the new academic and residential buildings, thereby reducing the proposed Project's impacts related to compatibility with the surrounding development, including adjacent historic properties. Under this alternative, the new academic building would have a reduced floor area of approximately 25,000 square feet, compared to 37,000 square feet under the proposed Project, while the residential building would have 120 dwelling units (30 fewer than the proposed Project). By reducing the floor area of new buildings, the academic building's height would be reduced from four to three stories, while the residential building would be reduced from up to six to four stories. The new buildings would have increased setbacks from streets relative to the proposed Project. It is assumed that these setbacks would be consistent with the City's R-3 zone standards. As for the proposed development, it is assumed that UC Berkeley would fully demolish the Upper Hearst parking structure to accommodate the new buildings. To accommodate 120 dwelling units in the residential building while reducing its scale, this alternative would involve the removal of more parking spaces than proposed for the Project.

1.2 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain a discussion of issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With respect to the proposed Project, the key issues to be resolved include decisions by lead agency, as to:

- Whether this environmental document adequately describes the environmental impacts of the proposed Project;
- Whether the mitigation measures and identified campus programs, practices and procedures should be modified and/or adopted;
- Whether the Project's benefits override those environmental impacts that cannot be feasibly avoided or mitigated to a level below significance;
- Whether there are other mitigation measures that should be applied to the Project besides those identified in the EIR; and
- Whether there are any alternatives to the Project that would substantially lessen any of its significant impacts while achieving most of the basic Project objectives.

1.3 AREAS OF CONTROVERSY

Section 15123(b)(2) of the CEQA Guidelines indicates that an EIR summary should identify areas of controversy known to the lead agency, including issues raised by agencies and the public. This Draft SEIR has taken into consideration the comments received from the public and various agencies in response to the Notice of Preparation (NOP) and during the public scoping session held on March 20, 2018. Written comments received during the NOP and scoping period are contained in Appendix A of this SEIR. Environmental issues that have been raised during opportunities for public input regarding the Project are summarized in Section 2, *Introduction*, of this Draft SEIR and are addressed in each relevant issue area analyzed in Section 6, *Environmental Evaluation*, of this Draft SEIR.

Based on input received from the public during the scoping process, areas of controversy include environmental impacts related to population growth, compatibility with historic resources, and utilities.

1.4 SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS

Table 1 presents a summary of the significant environmental impacts resulting from the proposed Project. It should be noted that all relevant continuing best practices (CBPs) and mitigation measures (MMs) from the 2020 LRDP EIR are incorporated into the Project description and would be implemented as a part of the Project and monitored through the Mitigation Monitoring and Reporting Program (MMRP) approved for the Project. Relevant CBPs and MMs from the 2020 LRDP EIR are listed in the introduction to the analysis for each topical issue in Section 6, *Environmental Evaluation*.

Table 1 addresses only those thresholds for which additional project-level analysis is required in this Draft SEIR. Thresholds for which it was determined that no further analysis is required are summarized in the respective topical SEIR sections. Only the CBPs and MMs relevant to the thresholds addressed in this Draft SEIR are included in Table 1-1; the Mitigation Monitoring and Reporting Program (MMRP) that will be prepared for the Project (as discussed below) will include all applicable CBPs and MMs as

identified in the SEIR. As shown in Table 1, even with incorporation of the applicable CBPs and MMs, the proposed Project would result in new significant and unavoidable impacts, beyond those identified in the 2020 LRDP EIR, related to visual character and quality and land use compatibility. For the other topical issues, the proposed Project would not introduce new significant and unavoidable impacts or more severe impacts than identified in the 2020 LRDP EIR.

Table 1:
Summary of Significant and Unavoidable Impacts

Resource Topic	Significant and Unavoidable Impact	Applicable Mitigation	Comparison to 2020 LRDP EIR
Aesthetics	Visual character and quality	None	New significant and unavoidable impact
Cultural Resources	Historical resources	▪ 2020 LRDP EIR mitigation: MM CUL-3 ▪ Project-specific mitigation: MM CUL-1	Same impact level
Land Use	Land use compatibility	None	New significant and unavoidable impact
Noise	Construction noise	▪ 2020 LRDP EIR mitigation: MM NOI-4	Same impact level
	Exposure of new residents to ambient noise	▪ 2020 LRDP EIR mitigation: MM NOI-3	Same impact level

2. INTRODUCTION

2.1 INTENDED USES AND PURPOSE OF THE SUPPLEMENTAL EIR

UC Berkeley is proposing to construct and operate the proposed Project on an approximately 44,900-square-foot portion (just over one acre) of a University-owned property at the northwest corner of La Loma Avenue and Hearst Avenue, across Hearst Avenue from the northeastern portion of the UC Berkeley Campus Park. The proposed Project will create vital new academic and study spaces for GSPP programs, maintain as much parking as possible, and incorporate much needed housing. A detailed description is provided in Section 3, *Project Description*, of this Draft SEIR.

This Draft SEIR has been prepared to identify and analyze the environmental impacts associated with implementation of the proposed Project, as well as feasible mitigation measures and alternatives to reduce or avoid the Project's significant effects. This Draft SEIR been prepared in conformance with CEQA and the CEQA Guidelines, and with the University of California (UC) procedures for implementing CEQA. The lead agency is required to consider the information and analysis in the SEIR, along with any other relevant information, in making its decisions on the proposed Project.

The Draft SEIR also updates the 2020 LRDP EIR's population baseline to reflect existing campus headcount as that headcount is greater than the projections used in the 2020 LRDP EIR. The updated baseline and accompanying analysis are intended to facilitate future environmental review of campus development projects that will tier from the 2020 LRDP EIR.

2.2 TYPE OF ENVIRONMENTAL IMPACT REPORT

The 2020 Long Range Development Plan (LRDP) EIR (State Clearinghouse [SCH] No. 2003082131) was prepared to analyze the environmental effects of the 2020 LRDP and was certified by The Regents in January 2005. The 2020 LRDP EIR was updated by LRDP Amendment #1 and Addendum #5 to address Climate Change. The 2020 LRDP EIR is a Program EIR and was prepared in accordance with CEQA Sections 21080.09 and CEQA Guidelines Section 15168.

It has been determined that a supplemental EIR (SEIR) tiered from the 2020 LRDP EIR is the appropriate environmental document for the proposed Project. If an agency determines that one of the conditions described in Public Resources Code Section 21166 and CEQA Guidelines Section 15162 applies to a subsequent discretionary approval, it must prepare either a subsequent EIR or a supplemental EIR. Under CEQA Guidelines Section 15162 a subsequent EIR is required if:

1. Substantial changes are proposed in the project requiring major revisions to the previous EIR because of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes have occurred with respect to the circumstances under which the project is undertaken, which will require major revisions to the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance which was not known and could not have been known with the exercise of reasonable diligence at the time the EIR was certified as complete shows any of the following: (a) the project will have one or more significant effects

> not discussed in the previous EIR; (b) significant effects previously examined will be substantially more severe than shown in the previous EIR; (c) mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or (d) mitigation measures or alternatives which are considerably different from those analyzed in the Final EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

CEQA Guidelines Section 15163 sets forth the circumstances under which a project may warrant a supplemental (rather than subsequent) EIR. Specifically, a lead agency shall prepare a supplement to an EIR if any of the conditions described in Section 15162 requiring a further EIR are found, but only minor additions or changes would be necessary to make the original EIR adequate.

With respect to tiering from the 2020 LRDP EIR, CEQA and the CEQA Guidelines encourage the use of tiered environmental documents to eliminate repetitive discussion of the same issues. According to Section 15152 of the CEQA Guidelines "'[t]iering' refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on issues specific to the later project." Therefore, this SEIR is tiered from the 2020 LRDP EIR. The 2020 LRDP EIR is available for review at: https://capitalstrategies.berkeley.edu/campus-planning/planning-documents.

Section 15152(f) of the CEQA Guidelines instructs that when tiering, a later EIR or Negative Declaration shall be prepared only when the lead agency has determined that the later project may cause significant effects on the environment that were not adequately addressed in the prior EIR or Negative Declaration. Significant environmental effects are considered to have been "adequately addressed" if the lead agency determines that:

(A) they have been mitigated or avoided as a result of the prior environmental impact report and findings adopted in connection with that prior environmental report; or

(B) they have been examined at a sufficient level of detail in the prior environmental impact report to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.

The 2020 LRDP EIR indicated that projects implementing the 2020 LRDP would be examined to determine whether subsequent project–specific environmental documents are required. (See 2020 LRDP EIR Vol I page 1-2). UC Berkeley's use of the 2020 LRDP and 2020 LRDP EIR in project review was also specifically addressed in the first Thematic Response to comments received on the 2020 LRDP Draft EIR (2020 LRDP EIR Vol 3a, page 11.1- 1), which explained that projects "subsequently proposed must be examined for consistency with the program as described in the 2020 LRDP and with the environmental impact analysis contained in the 2020 LRDP EIR; if new environmental impacts would occur, or if new mitigation measures would be required, an additional environmental document would be prepared."

In conjunction with certification of the 2020 LRDP EIR and approval of the 2020 LRDP, The Regents also

adopted a Mitigation Monitoring and Reporting Program (MMRP). The MMRP ensures that campus continuing best practices (CBPs) and mitigation measures (MMs) that are the responsibility of UC Berkeley are enforceable, and implemented in a timely manner. As individual projects, such as the proposed Project, are designed and constructed, they include features necessary to implement relevant CBPs and MMs. In accordance with the Regents' approval of the 2020 LRDP and certification of the 2020 LRDP EIR, all relevant 2020 LRDP EIR CBPs and MMs are incorporated into the proposed Project description and will be implemented as a part of the Project and monitored through the MMRP approved for the 2020 LRDP EIR.

Relevant 2020 LRDP EIR CBPs and MMs are listed in the introduction to the analysis for each topical issue in Section 6, *Environmental Evaluation*. In addition to CBPs and MMs from the 2020 LRDP EIR MMRP relevant to the proposed Project, this SEIR identifies new Project-specific mitigation measures to reduce or avoid Project-specific impacts on historic resources; nonetheless, the SEIR finds a significant unavoidable impact on historic resources.

In summary, this tiered Draft SEIR provides a project-specific environmental analysis to determine if the proposed Project would result in any significant impacts not adequately addressed in the 2020 LRDP EIR and/or if additional mitigation measures beyond those adopted in the MMRP for the 2020 LRDP EIR would be required to reduce impacts to a less than significant level.

2.3 ENVIRONMENTAL IMPACT REPORT PROCESS AND REVIEW

UC Berkeley published and circulated a Notice of Preparation (NOP) of a Draft EIR for the Project on August 15, 2018. UC Berkeley received five formal comment letters during the 30-day NOP review period, from the following agencies, groups and individuals:

- Timothy Burroughs, Director, Department of Planning & Development, City of Berkeley
- Steven Finacom, Chair, City of Berkeley Landmarks Preservation Commission
- David J. Rehnstrom, Manager of Water Distribution Planning, East Bay Municipal Utility District
- Thomas N. Lippe, on behalf of Save Berkeley's Neighborhoods
- Frank Lienert, Associate Governmental Program Analyst, Native American Heritage Commission

Topics of concern raised in the NOP comment letters included impacts related to population growth, compatibility with historic resources, and utilities. Each of these topics is addressed in the SEIR's resource area analysis. The letters are included in Appendix A.

A public hearing on the SEIR will be held on March 12, 2019, at the UC Berkeley Alumni House east of the Haas Pavilion, beginning at 6:30 p.m. Comments on the SEIR must be received in the UC Berkeley Planning Office, 300 A&E Building, UC Berkeley, Berkeley, CA 94720-1382 or via email to planning@berkeley.edu, no later than 5:00 PM on April 8, 2019. For more information contact Raphael Breines, Senior Planner, at (510) 642-6796 or rbreines@berkeley.edu.

Hard copies of the SEIR and the 2020 LRDP EIR are available for review during normal operating hours at Capital Projects' Physical and Environmental Planning offices, 1st floor of the A&E Building on the UC Berkeley campus; and online at https://capitalstrategies.berkeley.edu/capital-projects/design-planning.

The proposed Project is scheduled for consideration of CEQA and design approval at the May 2019 meeting of The Regents of the University of California committee on Finance and Capital Strategies.

Upon certification of the SEIR, The Regents will consider whether to approve the proposed Project. As a part of their consideration for project approval, The Regents must approve Findings of Fact, a Statement of Overriding Considerations, and an MMRP. Where feasible mitigation measures are not available to reduce significant environmental impacts to a less than significant level, impacts are considered significant and unavoidable. Written findings will be prepared for each significant environmental effect identified in the SEIR, as required by CEQA Guidelines Section 15091. If The Regents certify an EIR for a project that has significant and unavoidable impacts, The Regents shall also state, in writing, the specific reasons for approving the project based on the Final EIR and any other information in the public record. This is called a "Statement of Overriding Considerations" and is used to explain the specific reasons that the benefits of a proposed project make its unavoidable environmental effects acceptable. The Statement of Overriding Considerations is adopted when the Final EIR is certified and before action to approve the proposed Project has been taken. Additionally, The Regents must adopt the MMRP to ensure compliance with mitigation measures that have been incorporated into the proposed Project to reduce or avoid significant effects on the environment during construction and/or implementation.

2.4 ORGANIZATION OF THIS DOCUMENT/TABLE OF CONTENTS

This SEIR is organized into the following sections:

Appendices:

Appendix A:	Public Comments in Response to the Notice of Preparation
Appendix B:	Draft Proposed Minor 2020 LRDP Amendment
Appendix C:	Air Quality Modeling Results
Appendix D:	Geotechnical Investigation
Appendix E:	Noise Technical Appendix
Appendix F:	Upper Hearst Development – Transportation Assessment
Appendix G:	UC Berkeley Long Range Development Plan Trip Generation Comparison
Appendix H:	Relevant 2020 LRDP EIR Mitigation Measures
Appendix I:	Cumulative Foreseeable Projects (list)

3. PROJECT DESCRIPTION

3.1 PROJECT LOCATION

UC Berkeley is located approximately ten miles east of San Francisco, as shown in Figure 1. Interstate 80, Highway 13, Highway 24, and Interstate 580 provide regional vehicular access to the campus. Regional transit access is provided by Bay Area Rapid Transit District (BART) and Alameda-Contra Costa Transit (AC Transit).

As shown in Figure 2, the Project site for the Upper Hearst Development is located on the northwest corner of La Loma Avenue and Hearst Avenue, across Hearst Avenue from the northeastern portion of the UC Berkeley Campus Park. The site is bordered on the north by Ridge Road and older, two to three-story modest-sized single-family and multi-family residential buildings across Ridge Road; on the east by La Loma Avenue and the four-story Foothill Student Housing complex; on the south by Hearst Avenue and the approximately four-story Cory Hall within the Campus Park across Hearst Avenue; and on the west by the approximately three-story GSPP buildings and a four-story student housing building (Cloyne Court Student Cooperative).

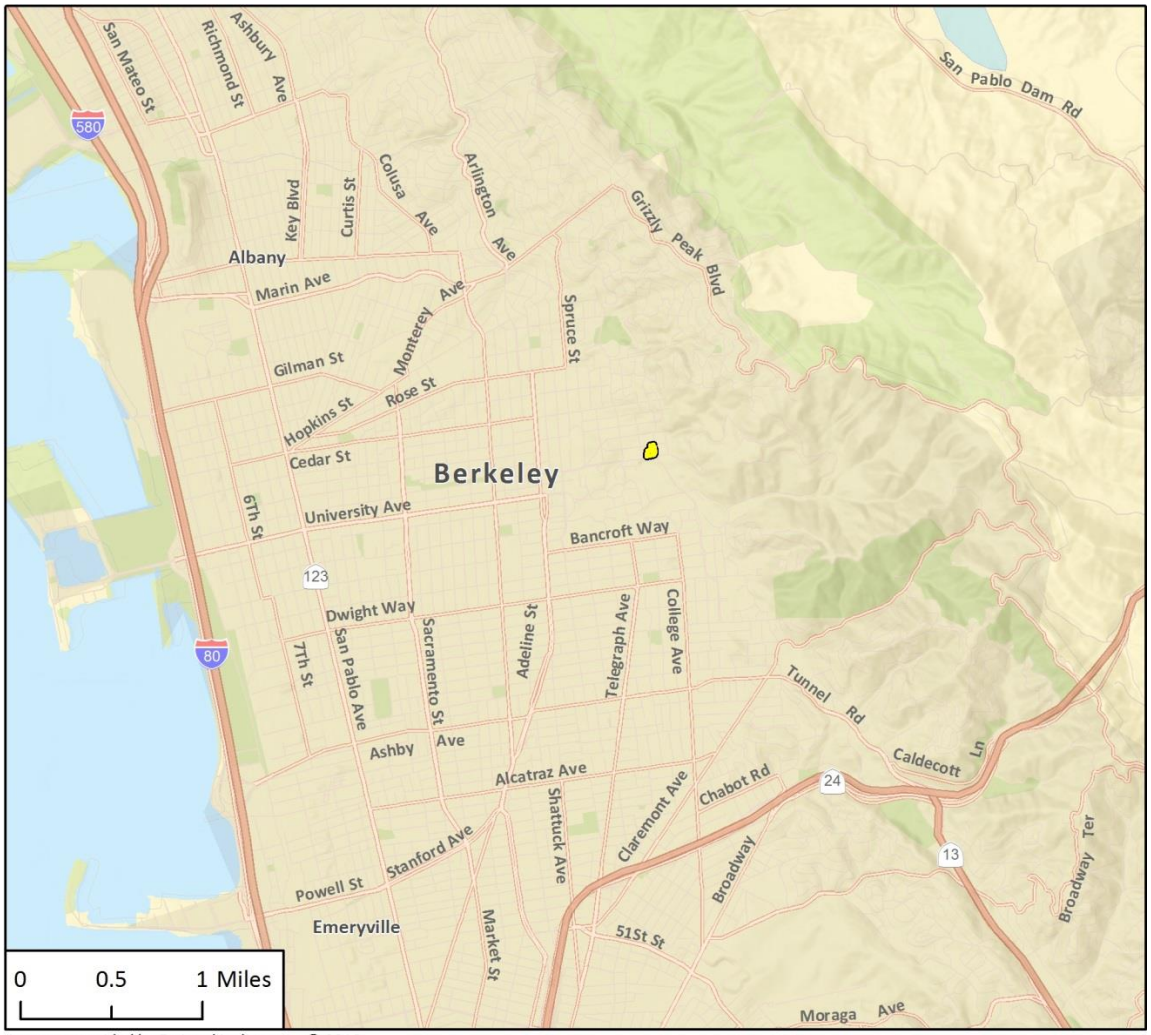
3.2 SITE DESCRIPTION

The L-shaped Project site is an approximately 44,900-square-foot portion (just over one acre) of a University-owned property. The site has approximately 125 feet of frontage on Hearst Avenue, 214 feet on La Loma Avenue, and 100 feet on Ridge Road. The southern portion of the site is developed with the 52-foot-tall, four-story Upper Hearst parking structure (also known on campus maps as Parking Structure H), containing 387 parking spaces. This parking structure curves around the corner of the intersection of Hearst Avenue and La Loma Avenue, with chain-link fencing on the roof enclosing the La Loma recreational field, a UC Berkeley Recreational Sports venue. The northern portion of the site is the at-grade, paved Ridge parking lot containing 20 parking stalls with concrete entrance ramps to the west and southeast that lead to the subterranean portions of the Upper Hearst parking structure.

Approximately 49 trees are located within and adjacent to the property lines of the Project site, including street trees. The most prominent trees are two coast redwoods (*Sequoia sempervirens*), both approximately 30 inches in diameter, located in a planter between the northeastern driveway to the Upper Hearst parking structure and La Loma Avenue. Nineteen deciduous sweet gum trees (*Liquidambar styraciflua*) occur in the public right-of-way adjacent to the Project site along Ridge Road, La Loma Avenue, and Hearst Avenue. The front and side yards of the Beta Theta Pi house include ten Victorian box trees (*Pittosporum undulatum*), five Kousa dogwoods (*Cornus kousa*), two Japanese maples (*Acer japonica*), two valley oaks (*Quercus lobata*), a Camperdown elm (*Ulmus glabra 'Camperdownii'*), a hornbeam tree (*Carpinus betulus*), a river birch (*Betulus nigra*), and a sweet gum tree. A valley oak, a coast live oak (*Quercus agrifolia*), and four acacia (*Acacia melanoxylon*) trees occur in the Ridge parking lot. Foundation shrub planting and vine plants also surround the parking structure's façade. Wooden utility poles with downward-facing street lights line La Loma Avenue adjacent to the Project site. Figures 3a through 3c show photographs of existing conditions on and adjacent to the Project site.

The Project site is located within the area of campus designated in the 2020 LRDP as the "City Environs," and within the City Environs' Adjacent Blocks North subarea. The areas within the City Environs are similar in consisting mostly of city blocks served by city streets, and include University-owned properties

FIGURE 1 REGIONAL LOCATION



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Project Location

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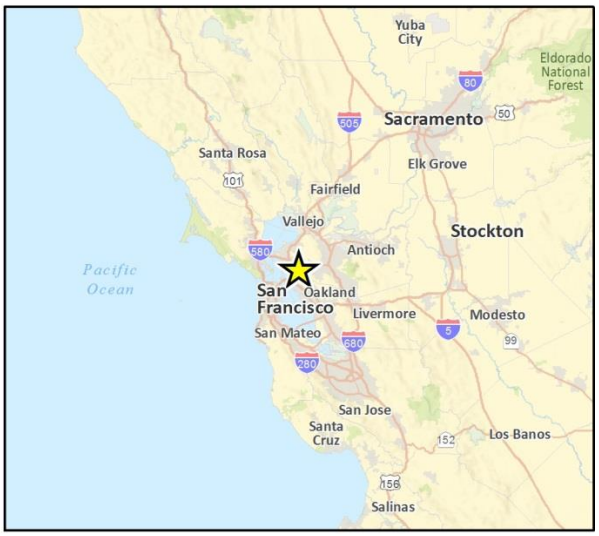


FIGURE 2 PROJECT LOCATION

FIGURE 3A PHOTOGRAPHS OF PROJECT SITE

View of Upper Hearst parking structure looking northeast from Hearst Avenue.

Southward view of Ridge Lot from Ridge Road.

FIGURE 3B SURROUNDING AREA PHOTOGRAPHS

Northward view of the historic Beta Theta Pi house on the current GSPP complex.

Northward view of the historic Cloyne Court building from the Upper Hearst structure.

FIGURE 3C SURROUNDING AREA PHOTOGRAPHS

View of residences on Ridge Road across from the Ridge parking lot, looking northeast.

View of Foothill Student Housing complex northeast of La Loma and Hearst avenues.

interspersed with non-university properties. The Adjacent Blocks North subarea is defined as the blocks bound by the Hill Campus, Lawrence Berkeley National Laboratory (LBNL), Ridge Road, Scenic Avenue, Hearst Avenue, Oxford Street, and the Campus Park. Major campus facilities on these blocks include Etcheverry Hall, Soda Hall, GSPP, the Greek Theatre, and the Bowles, Stern, and Foothill residence halls.

The southern boundary of the Project site has frontage along Hearst Avenue, which is a two-way traffic corridor that forms part of the northern perimeter street network around the Campus Park. The Hearst Avenue sidewalk is an intensely used circulation corridor for pedestrians and transit commuters, as a bus stop in front of Cory Hall serves the Perimeter (P) and Central Campus (C) lines of Bear Transit, AC Transit lines 52 and F, and the Blue and Orange Berkeley Lab routes.

3.3 NEED FOR THE PROJECT

The Goldman School of Public Policy is ranked as the number one policy analysis graduate program in the nation by U.S. News & World Report. GSPP faculty represents the top researchers in their respective fields, which include economics, political science, law, social psychology, and engineering. To maintain its pre-eminence, in the last 20 years, GSPP has enhanced its Master's of Public Policy (MPP) program; added additional concurrent degree programs (for a total of six); substantially augmented its Undergraduate Minor in Public Policy (now one of the largest minors on the UC Berkeley campus); established a self-supported Master's of Public Affairs (MPA), which is a one-year program for mid-career professionals; and created Executive Education programs that run throughout the year. To sustain and broaden these programs, GSPP needs additional teaching, research, meeting, lecture, and office space to support faculty, students, visitors, and staff.

GSPP's two existing buildings are fully occupied and intensively used. GSPP's existing facilities have exceeded their capacity and cannot accommodate several key elements of the program including more classroom space to keep pace with enrollment in the MPP program, a large classroom for undergraduate students, and space for a small expansion of its MPA and Executive Education programs. Moreover, GSPP is currently renting 4,500 square feet of space at Memorial Stadium for academic, operations and development uses. The addition of a third academic building is critical for the ongoing success and sustainability of GSPP's programs.

The new academic building would accommodate GSPP operations that currently take place in the existing GSPP buildings and other rented space on campus, while expanding the program's overall capacity to serve an additional five staff members and 30 students on average by the end of the 2023 school year. Further, the UC Berkeley campus is in need of housing for faculty, visiting scholars, graduate students, and post-doctoral students, to help the campus meet its commitment to increasing the housing offered to the UC Berkeley community. The Upper Hearst Development would help meet these needs by providing housing opportunities as well as additional building space for the growth of GSPP's various programs.

Finally, the Upper Hearst Development aims to meet the campus' goal of retaining as much parking as possible by preserving many of the existing parking spaces, while also providing payments in lieu of parking for the spaces that are removed.

3.4 PROJECT OBJECTIVES

The objectives of the Project are to:

- Support UC Berkeley's academic enterprise, enrich the campus community experience and create a sustainable future
- Create a dynamic environment for learning by expanding GSPP with additional teaching, collaborative research and event space, which is imperative to maintaining the school's excellence and ability to recruit outstanding students and retaining expert faculty and scholars
- Fulfill UC Berkeley's Housing Master Plan Task Force Report (January 2017) goal of providing housing on this site to help meet current market demand
- Respond to the shortage of campus housing by providing affordable and accessible housing that improves the quality of life for faculty, staff and students, and supports the academic experience
- Maintain as much parking as possible on site and refurbish the almost 50 year old Upper Hearst Parking Structure in the process
- Transform underutilized University-owned parcels by promoting compact and clustered development of academic and housing facilities where appropriate
- Maintain the historic character and setting of the surrounding landmark buildings to the extent feasible
- Design and build facilities that aesthetically enhance the City and the campus vicinity over existing conditions and that are compatible with the surrounding neighborhood
- Continue to support academic excellence by accommodating recent UC Berkeley student enrollment growth
- Provide the program space, access and housing required to support a vital intellectual and engaged community

3.5 PROJECT DESCRIPTION

The Project would consist of the Upper Hearst Development for GSPP and a Minor LRDP Amendment to accommodate the proposed land uses on the Project site.

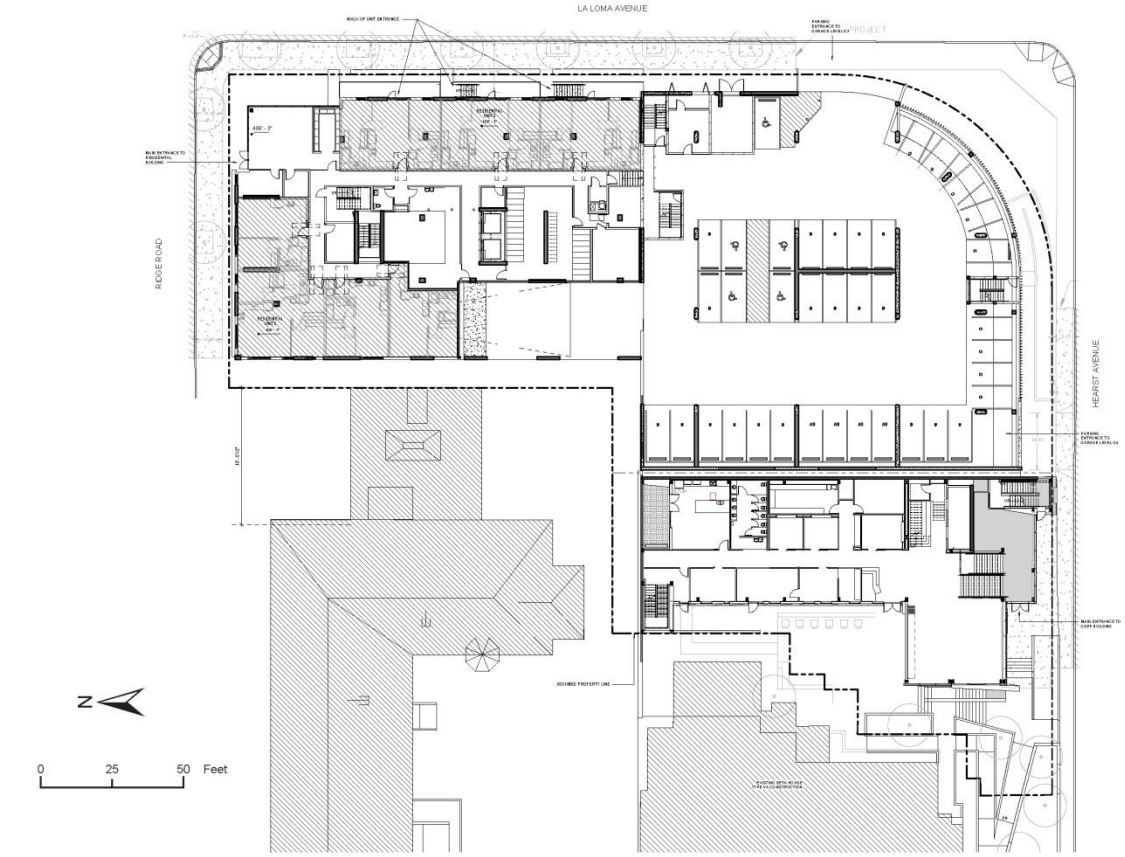
UPPER HEARST DEVELOPMENT

PROGRAM DESCRIPTION

The Upper Hearst Development would have residential and academic components. The construction of these components would alter the provision of parking on the Project site. Figures 4 through 18 show the proposed site plan, floor plans, building elevations, and architectural renderings.

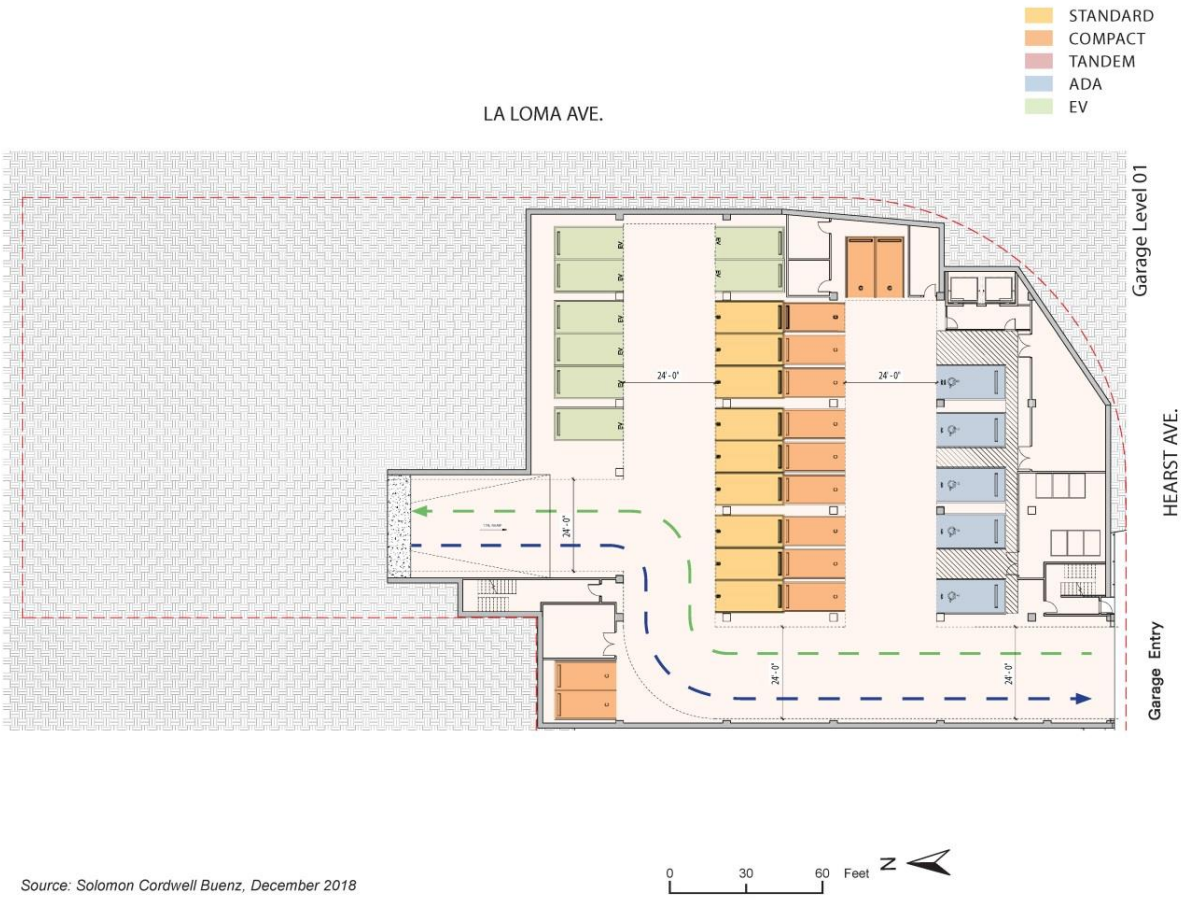
It is anticipated that the Upper Hearst Development would accommodate up to approximately 1,176 occupants, including approximately 300 people seated and up to 450 occupants at maximum capacity in the academic event space; public and private events in this space would occur periodically in the day and evening.

FIGURE 4 PROPOSED SITE PLAN



Source: Solomon Cordwell Buenz, May 2018

FIGURE 5 GARAGE LEVEL 1 FLOOR PLAN

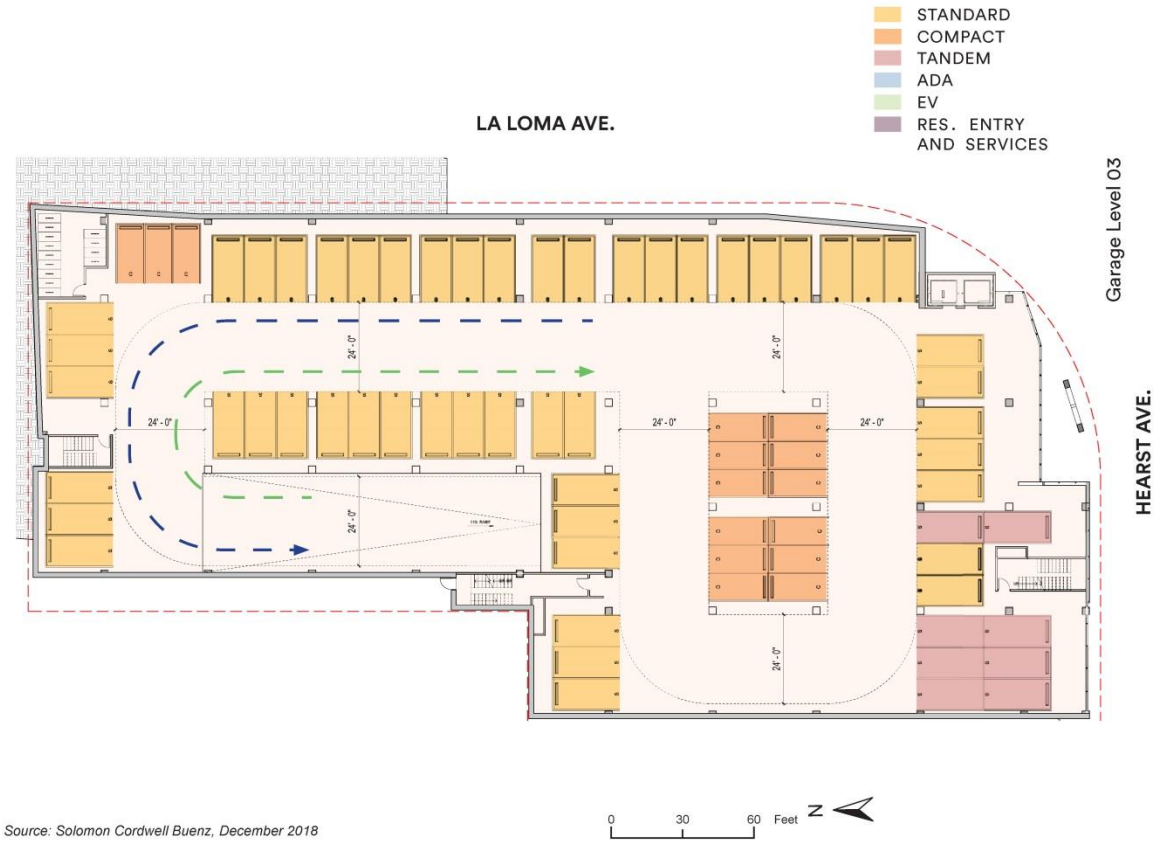


Source: Solomon Cordwell Buenz, December 2018

FIGURE 6 GARAGE LEVEL 2 FLOOR PLAN

Source: Solomon Cordwell Buenz, December 2018

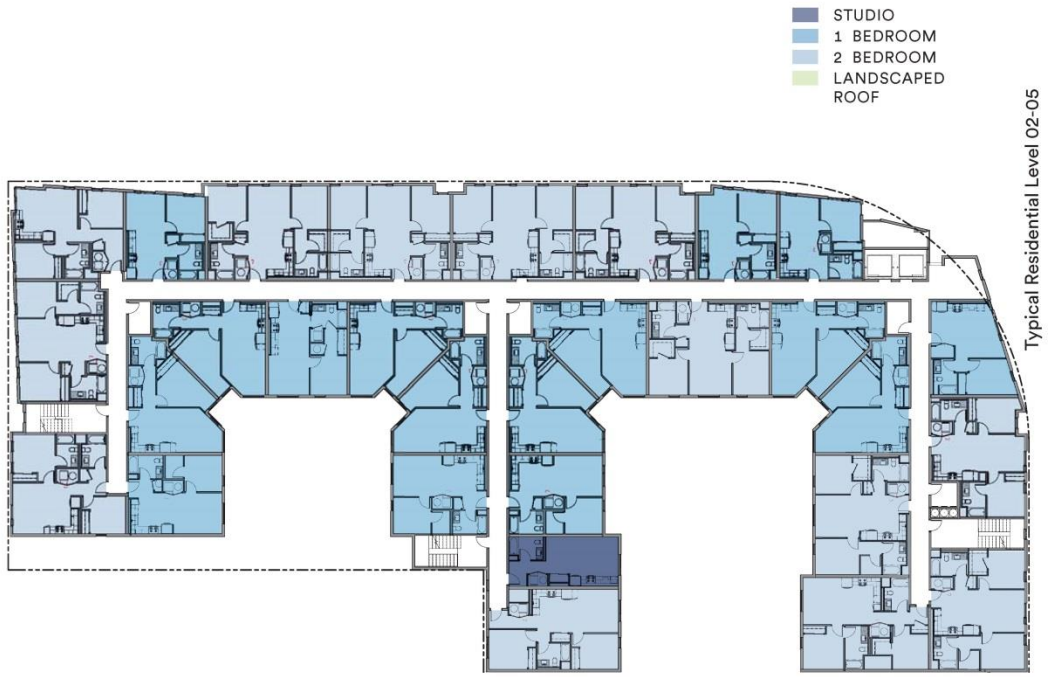
FIGURE 7 GARAGE LEVEL 3 FLOOR PLAN



Source: Solomon Cordwell Buenz, December 2018

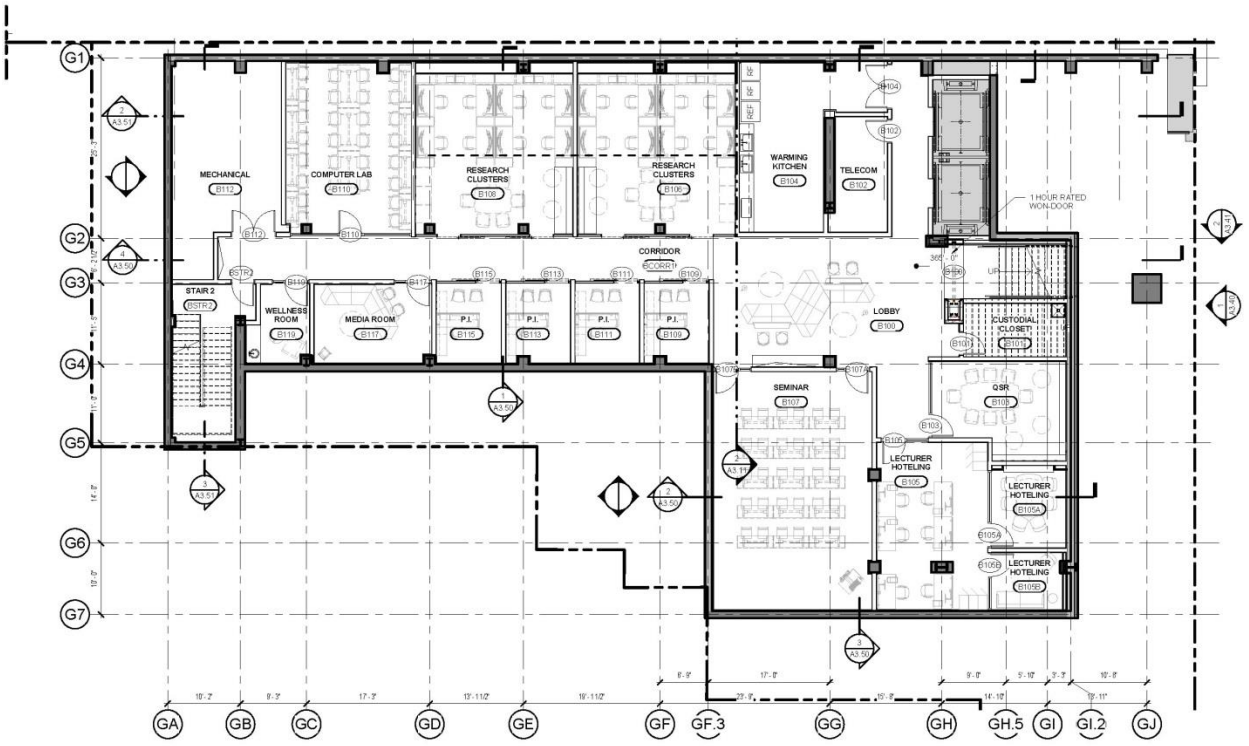
FIGURE 8 RESIDENTIAL BUILDING LEVEL 1 FLOOR PLAN

FIGURE 9 RESIDENTIAL BUILDING LEVELS 2-5 FLOOR PLAN



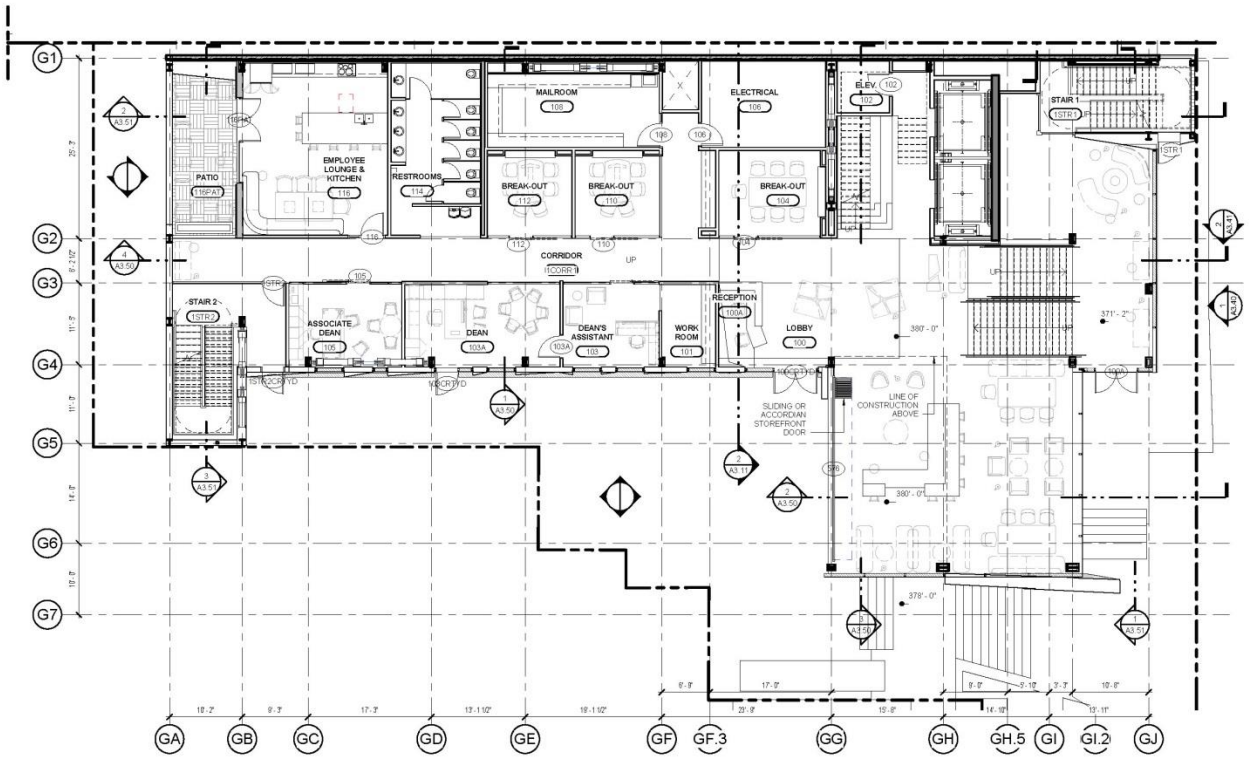
Source: Solomon Cordwell Buenz, December 2018

FIGURE 10 ACADEMIC BUILDING BASEMENT FLOOR PLAN



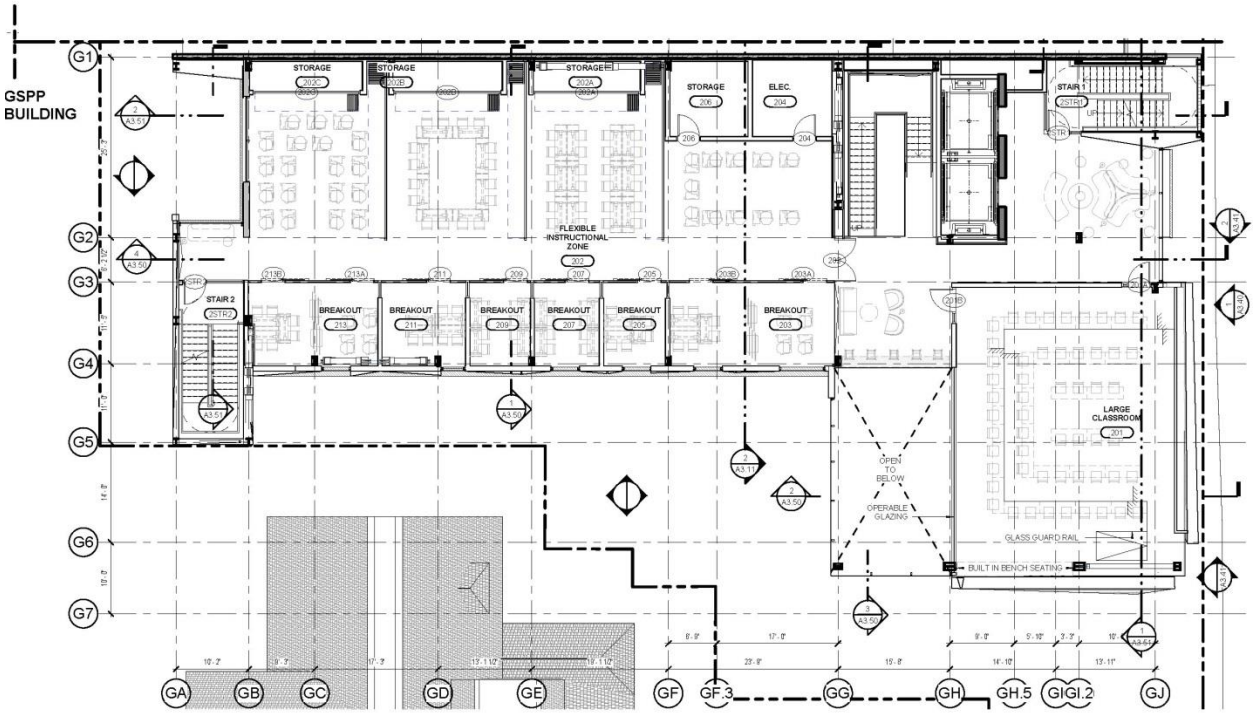
Source: Solomon Cordwell Buenz, May 2018

FIGURE 11 ACADEMIC BUILDING LEVEL 1 PLAN



Source: Solomon Cordwell Buenz, May 2018

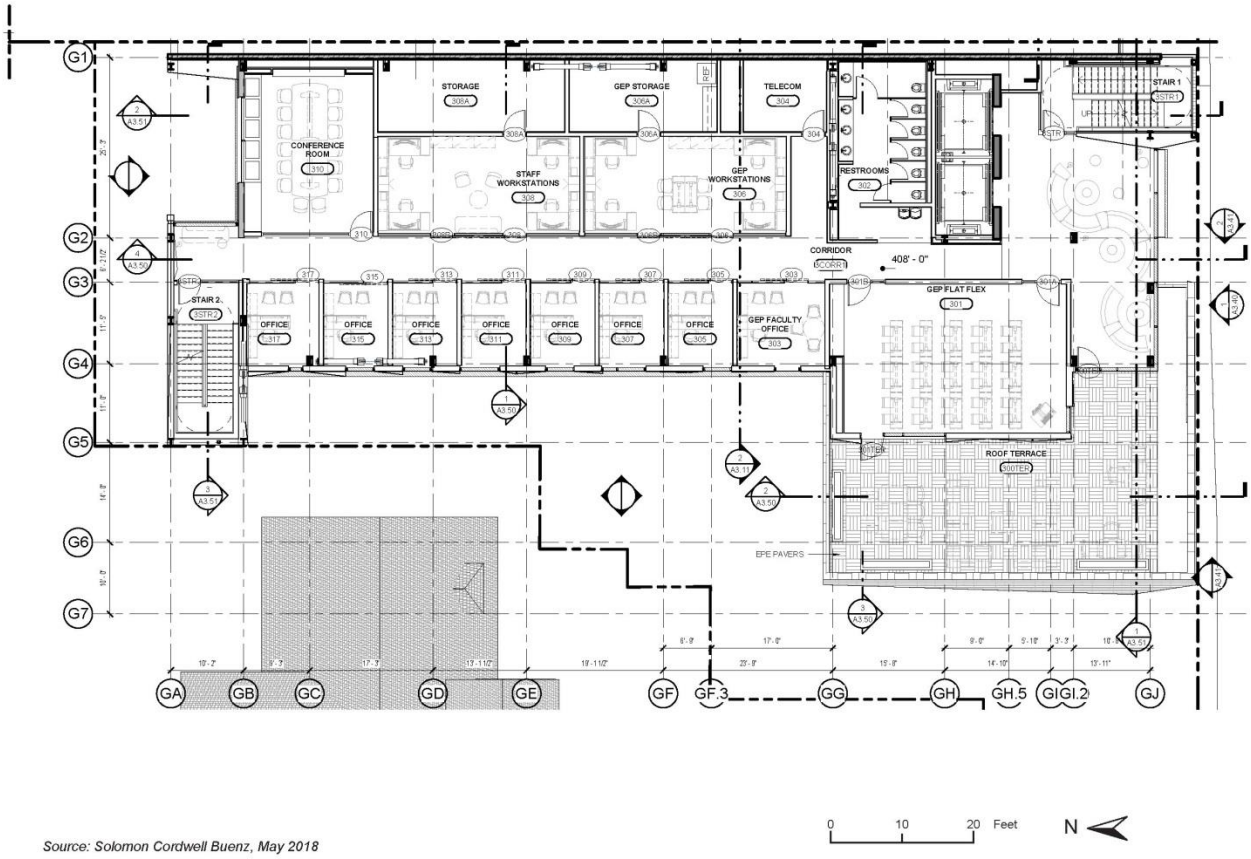
FIGURE 12 ACADEMIC BUILDING LEVEL 2 PLAN



Source: Solomon Cordwell Buenz, May 2018

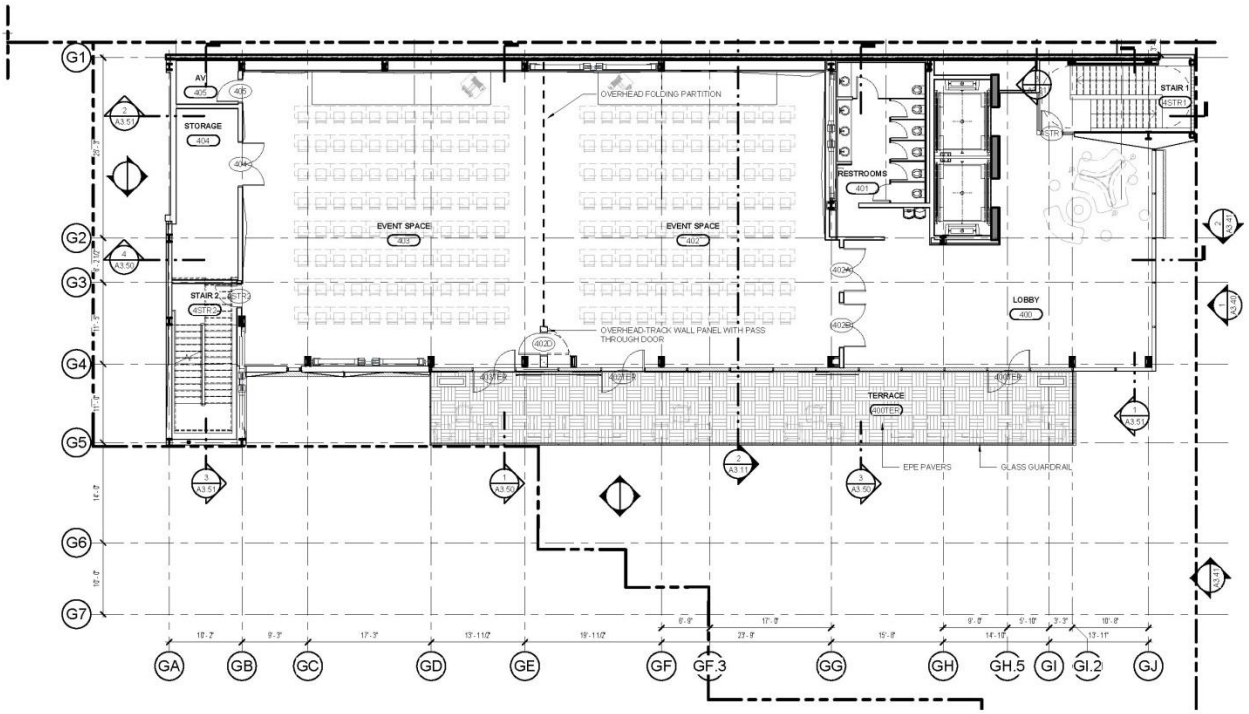
0 10 20 Feet N

FIGURE 13 ACADEMIC BUILDING LEVEL 3 PLAN



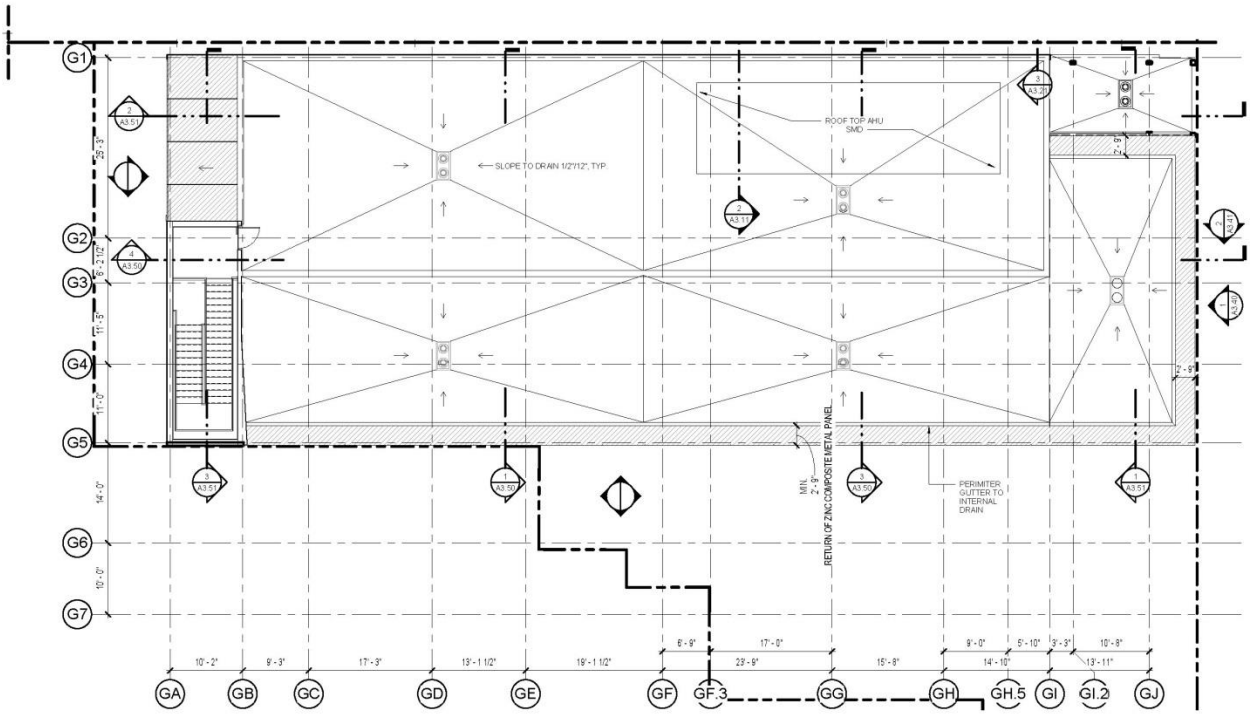
Source: Solomon Cordwell Buenz, May 2018

FIGURE 14 ACADEMIC BUILDING LEVEL 4 PLAN



Source: Solomon Cordwell Buenz, May 2018

FIGURE 15 ACADEMIC BUILDING ROOF PLAN



Source: Solomon Cordwell Buenz, May 2018

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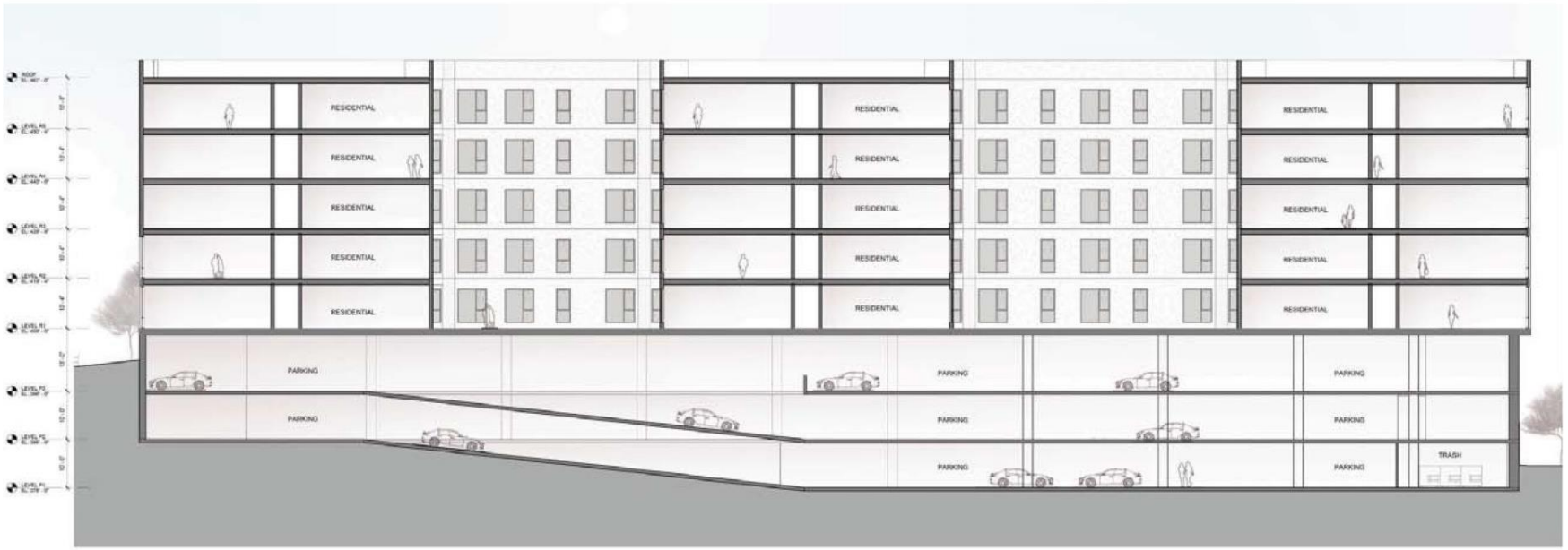
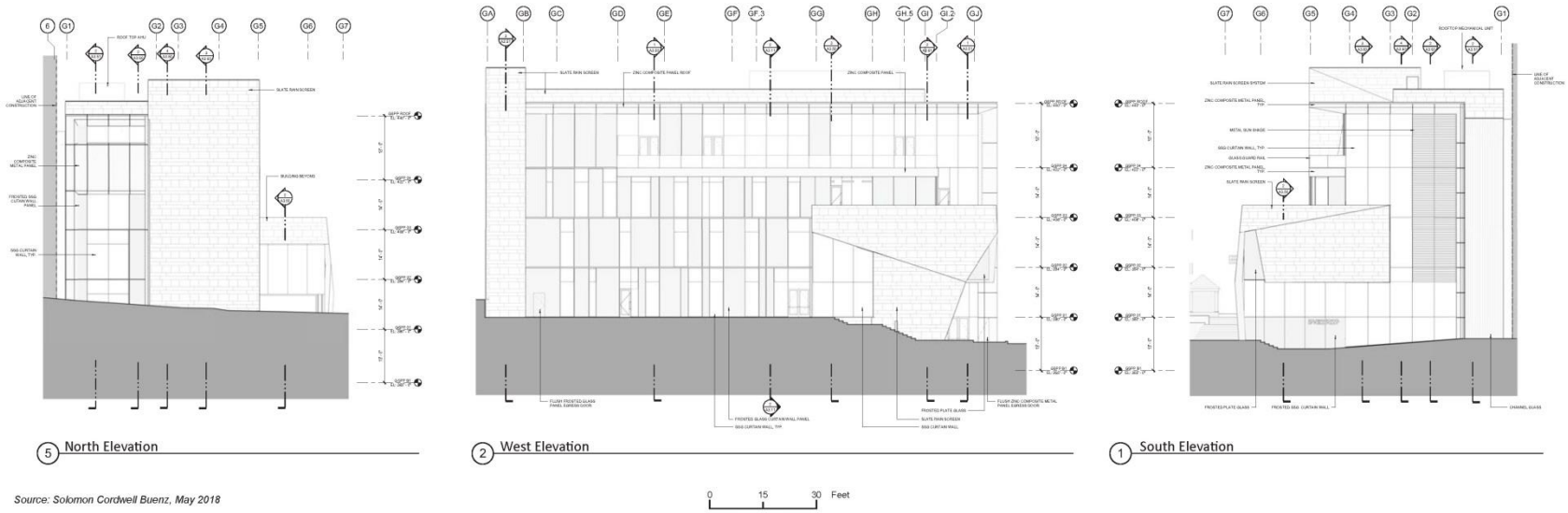
FIGURE 16 RESIDENTIAL BUILDING SECTION



Source: Solomon Cordwell Buenz, December 2018

FIGURE 17 ACADEMIC BUILDING ELEVATIONS



Source: Solomon Cordwell Buenz, May 2018

FIGURE 18 ARCHITECTURAL RENDERINGS

Academic Building

Source: Solomon Cordwell Buenz, May 2018

Residential Building

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Table 2 estimates the number of occupants in each component of the Project.

Table 2:
Estimated Project Occupancy

Use	Size	Occupancy Rate	Occupants
Residences	225 bedrooms	1 person/bedroom	225
Residential amenity space	1,250 sf	1 person/100 sf	13
Academic offices	9,090 sf	1 person/100 sf	91
Academic classrooms	5,950 sf	1 person/ 15 sf	397
Academic event space	3,150 sf	1 person/7 sf	450[1]
Total			***1,176***

[1] *Estimated occupancy of academic event space including standing room for 450 people.*

Source: Solomon Cordwell Buenz, May 2018

RESIDENTIAL COMPONENT

The residential component of the Upper Hearst Development would be constructed in a new building on top of a new Upper Hearst parking structure as well as on the adjacent at-grade Ridge parking lot now located at the corner of Ridge Road and La Loma Avenue. The residential component would consist of up to 150 residential units in a mixture of studio and one- and two-bedroom apartments in a building up to six stories tall. These units would house faculty, graduate, and post-doctoral students. The residential entrance would be located on the corner of Hearst and La Loma avenues at the P2 garage level. The residential amenity space on level P2 would consist of a lobby, lounge area, mail room, leasing office and fitness center. Additionally, two courtyards are proposed on the first level of residential units (Level R1).

At its maximum height, the residential roofline would be up to approximately 72 feet tall above adjacent grade on the Ridge Road (north) side, up to 69 feet on the La Loma Avenue (east) side and up to 87 feet tall on the Hearst Avenue (south) side (excluding possible rooftop mechanical equipment). It is assumed that the residential building would have no setbacks from adjacent streets, for the purpose of maximizing the provision of housing units while minimizing the building's height to the extent feasible. Two inner courtyards would separate the volumes of the residential building. Vehicles would access the parking structure below the residential building via a driveway from Hearst Avenue. Pedestrian and bicycle access to the housing portion of the site would be provided near the corner of Hearst and La Loma avenues.

ACADEMIC COMPONENT

A separate academic building would be constructed immediately east of the existing GSPP building located at 2607 Hearst Avenue, with a minimum setback of 10 feet from the existing building. To accommodate the new academic building, it is assumed that the entire Upper Hearst parking structure would be demolished. The approximately 37,000 gross square feet of office, classroom, and event space in the academic building would serve GSPP's undergraduate, graduate and Global Executive Education programs. The academic building would be four stories in height over one subterranean level. The fourth level would provide access to a rooftop terrace. The centerpiece of the design is a two-story atrium bordered on the exterior by a glass façade. This atrium would face west toward the existing GSPP

buildings and would have public space and interaction areas. Pedestrian and bicycle access to the proposed academic space would be provided from Hearst Avenue through the main entrance. A landscaped courtyard would connect to the main lobby.

The new academic building would accommodate GSPP operations that currently take place in the existing GSPP buildings and other rented space on campus (e.g., Cal Memorial Stadium), while expanding the program's overall capacity. It is anticipated that at full student growth by the end of the 2023 school year the academic building would serve an additional five staff members and 30 students on an average, year-round basis relative to existing conditions. Additional students would be part of GSPP's Masters of Public Affairs and executive education programs. The number of masters students would increase from 35 to 100 students, at most. The Masters of Public Affairs program largely takes place during the summer. The new building would also accommodate additional one-to-two-week executive education programs with 30 to 50 participants. It is anticipated that the event space would accommodate up to 300 people seated and 450 visitors at maximum capacity.

PARKING AND ACCESS

It is assumed for purposes of the environmental analysis that construction of the residential and academic buildings would require complete demolition of the Upper Hearst parking structure. The entire Ridge surface parking lot also would be demolished. The new Upper Hearst parking structure would be expanded northward to Ridge Road with two levels of parking. The Project site currently provides 407 parking spaces, including 337 marked parking stalls and the capacity for 50 attendant parking spaces in the Upper Hearst parking structure, and 20 marked parking spaces in the adjacent Ridge surface parking lot. As a result of removing existing parking areas, it is assumed that the Upper Hearst Development would reduce the total number of parking spaces on-site from 407 to approximately 200, including 175 marked parking spaces and 25 attendant parking spaces. One driveway from Hearst Avenue would provide vehicular access to the parking garage. The parking structure would be screened where it fronts on the corner of Hearst Avenue and La Loma Avenue.

Pedestrian access to the dedicated academic space would be provided from Hearst Avenue through the main entrance of the building. Pedestrian access to the housing portion of the site would be provided at the corner of Hearst and La Loma avenues. Bicyclists could enter the residential building to access bike storage via either the driveway to the parking structure or the residential lobby, both located near the corner of Hearst and La Loma avenues. An estimated fifty-two (52) bicycle parking spaces would be provided in the new or renovated Upper Hearst parking structure.

BUILDING DESIGN

The proposed buildings would have a contemporary design, with concrete, glass, and metal as the predominant exterior materials. At the residential building, exterior materials would include cement plaster, fiber cement panels, painted aluminum, and windows framed by aluminum accent panels. At the academic building, exterior materials would include frosted and clear glass curtain walls, metal sun shades, metal panels, and slate screens. Both buildings would have primarily flat, metal roofs. All roofing materials would have a high solar reflective index to reduce the heat island effect. The third and fourth floors of the academic building would be set back relative to the Beta Theta Pi building.

LANDSCAPING AND STREETSCAPE

Up to 49 trees within and adjacent to the Project site would be removed, including but not limited to a Camperdown elm tree in the front yard of the Beta Theta Pi house and two prominent redwood trees at the eastern end of the Upper Hearst parking structure. The Camperdown elm tree, with its distinctive flat-topped crown, contorted branches, and weeping habit, is a mature and prominent example of an uncommon tree species, as well as a character-defining feature of the Beta Theta Pi house's landscape (Garrett 2019). UC Berkeley's Campus Landscape Architect determined in January 2019 that, for its historical value, this tree qualifies as a "specimen tree" under Campus Specimen Tree Program. However, it was determined that the two redwood trees do not meet UC Berkeley's historical, educational, or aesthetic criteria to be considered "specimen trees." Although these trees are large and partially obstruct views of the on-site parking lots from street level, they are not an integral part of the architectural theme of the Upper Hearst parking structure, nor do they play an important role in framing or screening the structure.

The Project would also involve removal of up to 22 trees in the front and side yards of the Beta Theta Pi house. Six street trees would either remain or be replaced with trees that are compatible with the campus vicinity. Foundation shrub planting and vine plants at the existing building façade would be removed. The Project would not affect the stand of mature oak trees on the GSPP complex to the northeast of the intersection of Hearst and Le Roy avenues.

New interior landscape spaces and roof gardens would have drought-tolerant and primarily native plant species. New exterior lighting would be added to the perimeter of the academic and residential buildings, the pedestrian paths, and to the featured landscape elements to enhance safety and security at night. This exterior lighting would direct light downward and would use a combination of photo sensor and automated time switches. The existing sidewalks, curbs, and gutters adjacent to the Project site on Hearst Avenue, La Loma Avenue, and Ridge Road would also be replaced. New pedestrian ramps also would be installed in front of the Beta Theta Pi house, providing access to a stone-paved courtyard on the western side of the new academic building.

ENERGY EFFICIENCY AND "GREEN" FACILITY MEASURES

The Upper Hearst Development would be required to meet energy efficiency and green facility standards in the UC Sustainable Practices Policy, the UC Berkeley Energy Use Policy, and the UC Berkeley Campus Design Standards. The proposed residential and academic buildings would be designed to achieve a minimum LEED Silver rating and would target a Gold rating for new construction. "Green" facility measures in the proposed buildings would include low-emitting adhesives, sealants, composite wood, agrifiber products, paints, and coatings; Forest Stewardship Council-certified wood; and low-flow plumbing fixtures. According to the LEED checklists prepared for the Project, potable water used in outdoor landscaping would be reduced 50 to 100 percent from baseline building performance, while indoor water use would be reduced by 20 percent. Landscaping would minimize water demand by the use of native, drought-tolerant plants. The buildings' energy use would be reduced by 5 percent compared to baseline building performance in accordance with ASHRAE Standard 90.1-2010.

The proposed land uses and site layout would minimize greenhouse gas emissions from transportation, as the proposed residences for faculty, staff, and students would be located adjacent to the Campus Park and the GSPP complex. Relative to existing conditions, the proximity between residences and academic

space would reduce the need for people to commute by motor vehicle to the GSPP buildings, for those residents who are affiliated with GSPP. In addition, the Upper Hearst Development would reduce the number of parking spaces on-site and thereby would induce minimal demand for additional driving. In the new or renovated parking garage, an estimated 10 parking spaces for electric vehicles would be provided. An estimated fifty-two (52) total bicycle parking spaces would be provided in the parking structure.

DRAINAGE AND UTILITIES

The Upper Hearst Development would involve the installation of several bioretention facilities to treat all stormwater runoff from the site before offsite discharge. The majority of the stormwater treatment planters for the residential building would be located at its internal courtyards, which would pick up all runoff from the residential roof. Additional small treatment planters may be installed at the building façade to treat water from the courtyard level. At the academic building, stormwater treatment planters are proposed in the courtyard west of the building to pick up runoff from the roof. An additional small treatment planter may be installed adjacent to the Hearst Avenue sidewalk to pick up surface runoff from the ramp and stairs to the academic building. These stormwater improvements would be designed to maintain or reduce existing peak stormwater flows from the Project site.

Water service and wastewater service would be taken from existing East Bay Municipal Utility District (EBMUD) and City of Berkeley infrastructure under Hearst Avenue and La Loma Avenue. It is anticipated that the new academic building would receive electricity from the campus central energy management system, while the residential building would be unconnected to that system.

CONSTRUCTION

It is anticipated that construction of the Upper Hearst Development would take approximately 23 months overall, beginning in September 2019 and concluding in July 2021. Table 3 shows the expected sequence and duration of construction phases:

Table 3:
Estimated Construction Phasing

Phase	Duration (months)
Earthwork, demolition, grading, concrete	6
Framing, mechanical, electrical, plumbing	7
Exterior and interior finishes	8
Sidewalks	2
Total	***23***

Source: UC Berkeley, April 2018

The delivery of construction equipment, removal of demolished materials, hauling of soil, and use of concrete trucks would be intermittent during the first eight months of construction. Heavy truck activity for material deliveries would occur during the remainder of construction. The academic and residential buildings would be constructed concurrently.

Grading would involve an estimated 13,147 cubic yards of cut and 140 cubic yards of fill, resulting in a net export of 13,007 cubic yards of material for offsite disposal. In addition, demolition of the existing parking areas would require the export of approximately 7,000 cubic yards of material from the Project site. The maximum depth of excavation would be approximately 23 feet below grade level.

LRDP AMENDMENT

The 2020 LRDP assumes that all new University-provided housing would be constructed within the limits of a Housing Zone. Because the proposed residential building would be located outside this Housing Zone, as currently defined in the 2020 LRDP, the Project includes a minor 2020 LRDP amendment to the City Environs Framework text of the 2020 LRDP, which would expand the Housing Zone to accommodate residential development on the Project site. See Appendix B for the complete proposed text amendment to the 2020 LRDP.

3.6 PLANNING CONTEXT

2020 LRDP

The Project is proposed as partial implementation of the 2020 LRDP. Adopted by The Regents in January 2005, the 2020 LRDP describes both the scope and nature of physical development necessary to achieve the academic mission of UC Berkeley for an estimated campus population projected through academic year 2020-2021(UC Berkeley 2005). The 2020 LRDP also prescribes a comprehensive set of principles, policies, and guidelines to inform the location, scale and design of individual capital projects. These include the Location Guidelines, which establish priorities for the location of campus functions, both within the historic Campus Park and outside of it, including the Adjacent Blocks land use zones identified in the 2020 LRDP. The Project site is located within the Adjacent Blocks North subarea. Within the Adjacent Blocks, the Location Guidelines identify Student Services, including "Fitness, recreation, intercollegiate athletics," as priority uses. The 2020 LRDP also identifies UC-owned surface parking lots in the areas surrounding the Campus Park as candidate sites for realizing implementation of the overall 2020 LRDP land use and facilities program. The 2020 LRDP also established a Housing Zone which currently excludes the Project site.

2020 LRDP EIR

The 2020 LRDP EIR provides a comprehensive program-level analysis of the 2020 LRDP, and potential effects on the environment in accordance with Section 15168 of the CEQA Guidelines. The 2020 LRDP EIR prescribes continuing best practices and mitigation measures for all projects implemented under the 2020 LRDP.

UC DESIGN REVIEW PROCESS

The Upper Hearst Development was reviewed by the UC Berkeley Design Review Committee on September 6, 2017; May 17, 2018; June 6, 2018; December 20, 2018; and January 17, 2019. The committee provided comments on the exterior materials of the proposed buildings, screening and design of building components, and potential sound barriers, among other design features.

UC REGENTS REVIEW

The Upper Hearst Development would be funded partially by GSPP's donor funding reserves (approximately $10 million) with the remainder to be financed with a tax-exempt bond under a financing trust structure. Annual revenue capacity from GSPP would fund the operations, management and debt service of the academic building. Rental revenues from the new housing development would support debt service for the residential building and parking structure, as well as the maintenance and operations for the residential building. Because the Upper Hearst Development was not anticipated in UC Berkeley's Capital Financial Plan and the overall cost of the Project would exceed $10 million, review of the Project by The Regents is required.

CITY OF BERKELEY REVIEW

The continuing best practices prescribed in the 2020 LRDP EIR include the following requirements for all projects located in the 'City Environs', which includes the areas within Berkeley lying outside the 'Campus Park' and 'Hill Campus':

> UC Berkeley would make informational presentations on all major projects in the City Environs in Berkeley to the Berkeley Planning Commission and, if relevant, the Berkeley Landmarks Preservation Commission for comment prior to schematic design review by the UC Berkeley Design Review Committee … Whenever a project in the City Environs is under consideration by the UC Berkeley DRC, a staff representative designated by the city in which it is located would be invited to attend and comment on the project. (Continuing Best Practice AES-1-e)

The Project site is located in the City Environs, specifically within the Adjacent Blocks North subarea of the 2020 LRDP, in the City of Berkeley.

Consistent with Continuing Best Practice AES-1-e, UC Berkeley staff presented the Upper Hearst Development at the City of Berkeley Design Review Committee meeting on June 21, 2018, and at the City of Berkeley Landmarks Preservation Commission meeting on July 5, 2018. The City's Design Review Committee found that the proposed buildings' modern design appears to be a "good foil" for an adjacent historic landmark (the Beta Theta Phi house) but should generally fit better into the neighborhood context. To preserve views of the landmark across Hearst Avenue, the City's Design Review Committee recommended setting the buildings further back. The Design Review Committee also recommended the use of alternate exterior building materials that add more warmth and accent colors. The City's Landmarks Preservation Commission expressed concern that the scale, massing, and exterior materials of the proposed buildings would be incompatible with the surrounding neighborhood.

4. RELATIONSHIP TO 2020 LRDP

BACKGROUND

UC Berkeley's 2020 LRDP was approved by The Regents in January 2005, and describes both the scope and nature of physical development necessary to achieve the academic mission of UC Berkeley for an estimated campus population projected through academic year 2020-2021, as well as land use principles and policies to guide the location, scale and design of individual capital projects.

The 2020 LRDP EIR provides a comprehensive program-level analysis of the environmental effects of implementing the 2020 LRDP, in accordance with Section 15168 of the CEQA Guidelines. Under CEQA, subsequent projects should be examined in light of the program-level EIR to determine whether subsequent project-specific environmental documents must be prepared. Subsequent documents may rely on the program-level EIR for information on setting and regulatory framework, for analysis of general growth-related and cumulative impacts, and for alternatives to the 2020 LRDP. 2020 LRDP mitigation measures and continuing best practices that reduce potential impacts of the project would be implemented as part of the project, and would be identified in the project-specific review. Additional mitigation measures may also be identified.

2020 LRDP EIR mitigation measures and continuing best practices to be incorporated into the proposed Project are identified in each topical issue in Section 6, *Environmental Evaluation*, of the SEIR. The 2020 LRDP and the 2020 LRDP EIR are available on line at https://capitalstrategies.berkeley.edu/campus-planning/planning-documents; copies are also available for review during normal operating hours at Capital Strategies' Physical and Environmental Planning offices, 1st floor of the A&E Building on the UC Berkeley campus.

PARAMETERS OF THE 2020 LRDP

This section discusses the parameters of the 2020 LRDP in terms of the location and amount of new development anticipated, and compares the Project to these parameters. The 2020 LRDP establishes a long-term development program for land use zones occupied by University facilities, including the Campus Park, Adjacent Blocks, Southside, Clark Kerr Campus, and Hill Campus. The City Environs encompasses this entire area except for the Campus Park and Hill Campus. The Project site is located in the area designated as the Adjacent Blocks North subarea of the City Environs. In the area governed by the 2020 LRDP, including the Project site, UC Berkeley anticipated over 2.2 million net new gross square feet of development during the 2020 LRDP timeframe. This growth envelope was analyzed in the 2020 LRDP EIR (2020 LRDP EIR Vol 3a, 3.1-14).

In response to future space demand by campus programs, the 2020 LRDP anticipates that capital investment on Adjacent Blocks through 2020 may result in a net increase in program space of up to 1,250,000 gross square feet (gsf), and up to 1,900 net new parking spaces. The 2020 LRDP anticipates that new space on the Adjacent Blocks would be produced by more intensive redevelopment of existing University-owned sites, as well as the California Department of Health Services (DHS) site west of Oxford Street and south of Hearst Avenue, if acquired by UC Berkeley. New space may also be produced on other sites by UC Berkeley directly or through joint ventures. The proposed academic building for the GSPP program would be consistent with the 2020 LRDP's vision of increasing space for campus programs on the Adjacent Blocks. However, the Location Guidelines in the 2020 LRDP prioritize new academic program space on the Campus Park, not on the Adjacent Blocks. Furthermore, the 2020 LRDP

does not identify the Upper Hearst parking structure, where the academic building would be built, as a potential development site. Therefore, this analysis assumes that the academic building would be outside the parameters of anticipated development on the Adjacent Blocks. A new 37,000 square-foot academic building on the Project site also would exceed the 2020 LRDP's development parameters for the Adjacent Blocks North subarea. While the 2020 LRDP projects an additional 50,000 gsf of program space in the Adjacent Blocks North subarea, construction of the 23,110-gsf Jacobs Hall leaves approximately 26,890 gsf of anticipated new program space in this area. Nonetheless, construction of the proposed 37,000 square-foot academic building would be within the overall physical development parameters of the 2020 LRDP. While the 2020 LRDP anticipated over 2.2 million net new gross square feet of development to the year 2020, UC Berkeley remains well below that envelope of development with 955,160 gsf constructed or under construction at the end of 2018. This represents only 43.4 percent of the anticipated floor area of new development. Therefore, the new academic and residential buildings would not cause an exceedance of overall development anticipated in the 2020 LRDP.

The housing objectives for the 2020 LRDP require that all new student housing be located either within a mile of the center of the Campus Park, defined as Doe Library, or within one block of a transit line providing trips to Doe Library in under 20 minutes. In the 2020 LRDP, this Housing Zone is defined to exclude those areas with residential designations of under 40 units per acre in a municipal general plan as of July 2003. The Project site is located outside of the Housing Zone because it is in the City of Berkeley's Medium Density Residential land use designation, which allows a maximum residential density of less than 40 units per acre. Therefore, the proposed residential units on the Project site would be outside of the locational parameters of anticipated residential growth under the 2020 LRDP. Nonetheless, the Project proposes up to 225 residential beds, which would be within the overall growth parameters of the 2020 LRDP. Since adoption of the 2020 LRDP, UC Berkeley has added 1,119 of the anticipated 2,600 new beds as of the end of 2018. Because UC Berkeley remains well below this envelope for housing growth, the proposed residential building would not be additional to residential growth anticipated in the 2020 LRDP.

CURRENT AND PROJECTED CAMPUS HEADCOUNT

Projected campus headcount numbers at UC Berkeley were discussed in the 2020 LRDP, Final EIR Section 3.1.5. The 2020 LRDP Final EIR's population numbers were based on actual headcount for students, employees (faculty and staff), and other visitors and vendors. Table 3.1-1 in the Final EIR indicated a student headcount of 31,800 and total regular-term campus headcount of 45,940 for academic year 2001-2002, and projected an academic year 2020 student headcount of 33,450 and total regular-term campus headcount of 51,260. As discussed in Section 3.1.5 of the 2020 LRDP Final EIR, it was anticipated that the student enrollment would level off and stabilize at 33,450 by the year 2010.

As of the publication of the Notice of Preparation for this SEIR in August 2018, UC Berkeley's student enrollment was 40,955 and the total campus headcount was 57,637, both of which exceed the projections described and analyzed in the 2020 LRDP Final EIR (as shown in Table 4 below). The 2017-18 year student enrollment of 40,955 exceeds the 2020 LRDP projection by approximately 7,500 students. Employee numbers are slightly below the 2020 LRDP projections. The increase in student enrollment results primarily from implementation of the California Master Plan for Higher Education which designates UC as the state's primary research institution. Pursuant to the Master Plan, UC selects undergraduates from among the top 12.5 percent of California high school graduates, as well as the top 4 percent of graduates of each California high school. The growth in college-age Californians has resulted

in increased enrollment at all UC campuses over the past two decades. [1] For example, on November 19, 2015, the UC Board of Regents approved a Budget Plan to enroll an additional 10,000 undergraduates at UC campuses over the following three years.

Population growth, in and of itself, is not an environmental impact. However, population growth may contribute to an increase in impacts in other topical areas. The population projections provided in the 2020 LRDP were solely for the purpose of conducting the impact analyses in the 2020 LRDP Final EIR. The proposed Upper Hearst Development would house approximately five net new employees and 30 additional students when construction is completed for the academic year 2022-2023. Because the 2020 LRDP Final EIR estimated campus headcount only through 2020 and because the campus headcount projected for 2020 has already been exceeded, the information in the 2020 LRDP Final EIR has become outdated. Therefore, a new baseline is being established for 2018, as well as new future projections to the academic year 2022-2023, the year that the Upper Hearst Development would be completed and occupied by the additional staff and students. This approach is consistent with the commitment that UC Berkeley made to the City of Berkeley in the 2020 LRDP Final EIR to conduct additional environmental review if the campus headcount for 2020 projected in the 2020 LRDP were to be exceeded prior to that time.

Despite the growth in campus headcount over 2020 LRDP projections, which has led to the new campus headcount baseline, the analysis in this SEIR shows that the campus is still operating within the envelope of capacities and demands for resources such as housing, water, electricity, public services, and others that were analyzed in the 2020 LRDP Final EIR. At the end of 2018, approximately 955,160 gsf of new 2020 LRDP developed space had been constructed or was under construction on the campus out of the 2.2 million gsf of development projected in the 2020 LRDP and analyzed in the 2020 LRDP Final EIR for year 2020. This is only 43 percent of the projected development total. Similarly, 1,119 student beds out of the 2,600 beds projected to be built in the 2020 LRDP had been constructed. The lack of new or more severe significant impacts associated with the increase in campus headcount can be attributed to the implementation of various UC policies contributing to a "greener campus" and to shifts in transportation behaviors moving away from single vehicle occupancy trips, among others. Chapter 12, *Population and Housing*, in Section 6, *Environmental Evaluation*, of this SEIR describes the updated baseline and the projected future populations of the campus through the 2022-2023 academic year to coincide with the completion and occupancy of the Upper Hearst Development.

The environmental analysis of each impact category in Section 6 of this SEIR takes into account the updated campus headcount baseline and explains how the increased campus headcount factors into and/or affects the environmental analysis and significance conclusions reached in the 2020 LRDP Final EIR and this SEIR. For some impact categories, such as Aesthetics, Cultural Resources, Land Use, and Tribal Cultural Resources, the analysis of whether the increased headcount causes environmental impacts hinges on physical development. For other impact categories, such as Air Quality, GHG Emissions, Noise, Population, Public Services, and Transportation and Traffic, the analysis of whether the increased headcount causes environmental impacts hinges on population numbers on the campus. The introductory section of each impact category section will explain the approach taken to accounting for the increased campus headcount in that section and how the increase in campus headcount factors into the impact analysis.

[1] California Education Code Sections 66202.5, 66011, and 66741 establish systemwide enrollment commitments for the University of California.

Table 4:
Comparison of Estimated Campus Headcount to Existing Conditions and 2020 LRDP Projections

	Projected Headcount[1] for Year 2020 in the 2020 LRDP	Existing Conditions for 2017-2018 School Year	Estimated Headcount for 2022-2023 School Year	Percent Change from Projected Headcount for Year 2020
Undergraduate students	N/A[3]	29,783	31,380	-
Graduate students	N/A[3]	11,172	13,355	-
Students total[2]	*33,450*	*40,955*	*44,735*	*+33.7%*
Regular faculty	1,980	1,513	1,653	-
Other faculty	-	1,296	1,416	-
Academic staff	4,880	3,426	3,545	-
Non-academic staff	8,950	8,447	8,741	-
Employees total	*15,810*	*14,682*	*15,355*	*-2.9%*
Other visitors & vendors	*2,000*	*2,000*	*2,000*	-
Overall total	***51,260***	***57,637***	***62,090***	***+21.1%***

[1] *Annual campus headcount is defined in this table as an average of the fall and spring semesters.*

[2] *Student counts include regular-term students, not summer-school students.*

[3] *N/A = not available*

Source: UC Berkeley, August 2018

OBJECTIVES OF THE 2020 LRDP

The purpose of the 2020 LRDP is to set forth a framework for land use and capital investment undertaken in support of the campus' academic principles. The 2020 LRDP is driven by the following broad objectives, all of which apply to the Project: (2020 LRDP EIR Vol 3a, 3.1-10).

- **Provide the space, technology and infrastructure we require to excel in education, research, and public service.**
- **Provide the housing, access, and services we require to support a vital intellectual community and promote full engagement in campus life.**
- **Stabilize enrollment at a level commensurate with our academic standards and our land and capital resources.**
- **Build a campus that fosters intellectual synergy and collaborative endeavors both within and across disciplines.**
- **Plan every new project to represent the optimal investment of land and capital in the future of the campus.**
- **Plan every new project as a model of resource conservation and environmental stewardship.**
- **Maintain and enhance the image and experience of the campus, and preserve our historic legacy of landscape and architecture.**
- **Plan every new project to respect and enhance the character, livability, and cultural vitality of our city environs.**

An analysis of the Project's fulfillment of the identified 2020 LRDP Objectives is provided in the Land Use discussion in Section 6, *Environmental Evaluation*.

2020 LRDP CLIMATE CHANGE AMENDMENT

In June 2009, UC Berkeley published a proposed amendment to the 2020 LRDP, Sustainable Campus chapter, to reflect existing campus commitments to address climate change. The 2020 LRDP Climate Change amendment reflects campus policy, including: "Design all aspects of new projects to achieve short term and long term climate change emission targets established in the campus climate action plan." UC Berkeley targets achievement of 1990 greenhouse gas emission levels by 2014, six years ahead of state mandated targets, and climate neutrality as soon as possible but not later than 2050. The amendment links the 2020 LRDP and the campus climate action plan, which is updated annually.

The amendment to the UC Berkeley 2020 LRDP was approved by UC Berkeley based on Addendum #5 to the UC Berkeley 2020 LRDP EIR in July 2009, following review and consideration of comments from community members. Addendum #5 describes existing climate change conditions and evaluates the potential for development under the UC Berkeley 2020 LRDP, with minor amendments to reflect current campus policy, to affect climate change (UC Berkeley 2009). Addendum #5 provides a summary of the current regulatory framework applicable to climate change, discussing the applicable federal, state, regional, and local agencies that regulate, monitor, and control GHG emissions. The Project complies with University policies on sustainable practices, as further described below. See https://capitalstrategies.berkeley.edu/2020LRDP/climate_change for documents and information. The proposed Project would implement the 2020 LRDP, as amended, which includes compliance with emission targets established in the Campus Climate Action Plan and therefore would not conflict with any applicable plan adopted for the purpose of reducing the emissions of greenhouse gases.

5. ENVIRONMENTAL DETERMINATION

UC Berkeley has prepared this Draft Supplemental Environmental Impact Report (SEIR) to evaluate the Project in accordance with CEQA (Public Resources Code Section 21000 et seq.). Based on the SEIR the campus has determined that the Project, which includes a Minor Amendment to the 2020 LRDP to address siting of the proposed residential building, is substantially consistent with the UC Berkeley 2020 LRDP EIR, including later addendum and amendments, but that the Project may cause new impacts not considered in the 2020 LRDP EIR in the areas of Aesthetics and Land Use. No other new information of substantial importance, which was not known at the time the 2020 LRDP EIR was certified, has become available; and thus UC Berkeley has prepared a Supplemental EIR to the 2020 LRDP EIR. The Project Description, above, and the following impact analysis, including all Appendices, for the Project as currently proposed, serves as the SEIR.

On the basis of the initial evaluation that follows, UC Berkeley finds that:

	The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
X	The proposed project MAY have a significant effect on the environment and only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation. In response, this document constitutes a SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT.
	The proposed project MAY have a 'potentially significant impact' or 'potentially significant impact unless mitigated' impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable standards and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards; and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, and (c) the project does not involve new information of substantial importance that shows mitigation measures or alternatives which are considerably different from those analyzed in the 2020 LRDP EIR or which were previously considered infeasible, are now feasible; therefore, the 2020 LRDP EIR and the documentation enclosed presents sufficient environmental analysis for the project.

Vini Bhargava
Director, Physical & Environmental Planning, UC Berkeley

6. ENVIRONMENTAL EVALUATION

All answers take account of the whole action involved, including beneficial, direct, indirect, construction-related, operational, and cumulative impacts, based on the checklist questions set forth in Appendix G of the CEQA Guidelines. A list of references used in the preparation of this Draft EIR is included at the end of this document.

In the checklist that follows:

2020 LRDP Analysis Sufficient applies to those issues where the environmental review completed for the 2020 LRDP is determined to be sufficient to address impacts of the Project, and where additional CEQA review would be repetitive. Discussion under each issue area marked '2020 LRDP Analysis Sufficient' includes specific reference to the 2020 LRDP EIR setting, pertinent impact analysis, and continuing best practices and mitigation measures incorporated into the Project to address the potential environmental impact in question.

Further Analysis Required is checked for those potential environmental impacts, which may or may not be significant, for which the environmental review completed for the 2020 LRDP does not in itself provide an adequate basis for a determination of no significant impact, and for which further analysis of the Project is required; when checked, the analysis is presented in the text.

1. AESTHETICS

SETTING

The 2020 LRDP and accompanying EIR provide a framework for considering the visual effects of the Project. The visual setting of the campus and its environs are described in the 2020 LRDP EIR (Section 4.1). According to the 2020 LRDP, the Project site is located within the City Environs. The following text summarizes context information for aesthetics relevant to the Project.

VISUAL CHARACTER

UC Berkeley was established on an expansive landscape of rolling hills, framed by the north and south forks of Strawberry Creek. The Project site is located within the area of campus designated in the 2020 LRDP as the "City Environs," defined to include the Adjacent Blocks, the Southside, Other Berkeley Sites, and the Housing Zone in its entirety: in other words, the entire scope of the 2020 LRDP except for the Campus Park and Hill Campus. The areas within the City Environs are similar in consisting mostly of city blocks served by city streets, and include University-owned properties interspersed with non-university properties.

Similar to the heart of UC Berkeley, the Campus Park, the City Environs have continued to evolve over the years, and in many areas single-family homes have given way to multifamily buildings. Because this development has occurred project by project, many residential districts have an eclectic mix of older one- and two-story single-family homes and newer, larger apartment buildings. The City Environs – the Adjacent Blocks, the Southside, and the Housing Zone – primarily consists of a grid of city blocks developed with a dense but largely low-rise mix of residential, commercial, and institutional buildings. One- to four-story buildings with street level shops and services as well as office or residences on upper floors predominate along arterials, while interior blocks tend to be exclusively residential. According to the 2020 LRDP, the Project site is located within the Adjacent Blocks North subarea, which is bounded by the Hill Campus, LBNL, Ridge Road, Scenic Avenue, Hearst Avenue, Oxford Street, and the Campus Park. Major campus facilities on these blocks include Etcheverry Hall, Soda Hall, GSPP, the Greek Theatre, and the Bowles, Stern, and Foothill residence halls.

The Project site is located in a fully developed and primarily residential Northside neighborhood of Berkeley. As detailed in Chapter 5, *Cultural Resources*, this neighborhood is characterized by historic architecture. Three adjacent historic buildings exemplify the First Bay Tradition of the Arts and Crafts movement in architectural design and include: the Beta Theta Pi house at 2607 Hearst Avenue (west and within Project site), Cloyne Court Student Cooperative at 2600 Ridge Road (north and west of Project site), and a private house (formerly the Phi Kappa Psi fraternity house) at 2627 Ridge Road (immediately north across Ridge Road). The First Bay Tradition was a regional architectural movement identified by simple, rustic design executed primarily in unpainted redwood. Other surrounding single-family homes are mostly two to three-stories and are a mix of older, Tudor and post-Victorian Queen Anne style homes. In addition, surrounding apartments are mostly older, three to five-story buildings.

The predominant feature on the Project site is the L-shaped, four-story Upper Hearst parking structure that was built in 1970. The concrete parking structure curves around the corner of the intersection of La Loma Avenue and Hearst Avenue and includes chain-link fencing on the top of the structure, which encloses a recreational field. The northern portion of the site is the at-grade asphalt Ridge Lot which has 20 parking stalls. Concrete entrance ramps to the west and southeast lead to the subterranean portions of the Upper Hearst parking structure. The topography in the area is generally hilly, sloping generally

toward the west. The average slope along Hearst Avenue and Ridge Road is approximately 10 percent. The Project site slopes upward from the southwest to the northeast corner. Refer to Figures 3a through 3c for a visual representation of existing conditions on and adjacent to the Project site.

SCENIC VISTAS, HISTORIC RESOURCES AND LANDSCAPE

Scenic vistas in the vicinity of the Project site include views of the East Bay hills to the northeast and of the San Francisco Bay and the Marin Headlands looking westward along Hearst Avenue. Views of these scenic resources are not currently visible from or through the Project site, except for a narrow portion of the Bay from Hearst Avenue east of La Loma Avenue. The Project site is visible from Hearst Avenue, La Loma Avenue, and Ridge Road. None of these routes have been officially designated by UC Berkeley or City of Berkeley as scenic roadways. Designated historic resources adjacent to the Project site include three buildings in the First Bay Tradition architectural style: University-owned Beta Theta Pi house to the west and the Cloyne Court Student Cooperative building to the west and northwest, and the Phi Kappa Psi house at 2627 Ridge Road to the north.

Approximately 49 trees are located within and adjacent to the Project site with most having a trunk diameter of 14 inches or less. The Camperdown elm tree in the front yard of the Beta Theta Pi house is a mature and prominent example of an unusual tree, and a character-defining feature of the Beta Theta Pi house's landscape (Garrett 2019). UC Berkeley's Campus Landscape Architect has determined that this tree qualifies as a specimen tree. Because of its striking appearance, with contorted and weeping branches, and its importance to the greater landscape, the Camperdown elm tree is a scenic resource. Two other trees within the property line are redwoods, each with an approximately 30-inch trunk diameter, adjacent to the existing parking entrance on La Loma Avenue. The redwoods are the tallest trees on the Project site, but the Campus Landscape Architect has determined that they are not specimen trees, so they do not represent scenic resources. Street trees are located across Hearst Avenue in front of Cory Hall; however there are no street trees in front of the existing GSPP buildings along Hearst Avenue. Street trees line the Project site along La Loma Avenue and Ridge Road. Foundation shrub planting and vine plants also surround the building façade.

LIGHTING

Nighttime ambient light levels in the vicinity of the Project site are typical of an urban environment. Wooden utility poles with downward-facing street lights line La Loma Avenue and Ridge Road adjacent to the Project site. The signalized intersection of La Loma Avenue and Hearst Avenue, next to the southeast corner of the site, has additional pole-mounted light fixtures. Buildings adjacent to the Project site, such as Cory Hall, have a low level of exterior lighting. Within the Project site, the Upper Hearst parking structure has interior light fixtures on the ceiling of parking levels, and the Ridge Road entrance to this parking structure has a pole-mounted light fixture. Sensitive receptors in the area include residences in three-to-five-story buildings to the east, north, and west of the Project site. Views from these receptors toward interior lighting at the Upper Hearst parking structure are partially screened by deciduous street trees.

REGULATORY SETTING

2020 LRDP & 2020 LRDP EIR

Review of individual projects under the 2020 LRDP affects the visual quality of the campus and its City Environs by guiding the location, scale, form, and design of new University projects. The 2020 LRDP includes a number of policies and procedures for individual project review to support the Objectives of the 2020 LRDP. Two of the 2020 LRDP Objectives and one of the Policies are particularly relevant to aesthetics:

- **Maintain and enhance the image and experience of the campus, and preserve our historic legacy of landscape and architecture (Objective).**
- **Plan every new project to respect and enhance the character, livability, and cultural vitality of our city environs (Objective).**
- **Use municipal plans and policies to inform the design of future capital projects in the City Environs (Policy).**

As specified in the 2020 LRDP, UC Berkeley endeavors to be responsive to the interface of the campus and the city. For this reason, informational presentations at the schematic design stage of the Project were made to the City of Berkeley's Design Review Committee and Landmarks Preservation Commission.

The Project was reviewed by the UC Berkeley Design Review Committee on September 6, 2017; May 17, 2018; June 6, 2018; December 20, 2018; and January 17, 2019. The committee provided comments on the exterior materials of the proposed buildings, screening and design of building components, and potential sound barriers, among other design features.

SPECIMEN TREES

UC Berkeley has an existing campus program to guide the evaluation and designation of specimen trees. Other plants (shrubs, groundcover or grasses) which meet the criteria may also be considered as specimen flora. The Campus Landscape Architect makes the determination of status, using the following criteria: to be considered a specimen, the tree or plant should be in good health and not pose a hazard to pedestrian and 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. The tree is identified by landmark status, named with a plaque, is identified as a contributing feature in an historic structures report and/or identified in the LHP as a character defining feature of the landscape.
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: Removal of the tree would significantly increase erosion potential, affect the natural species diversity of the Creek as a riparian corridor.
Natural Area: The tree is located within the Wickson, Grinnell or Goodspeed Natural Areas (UC Berkeley 1996, cited in UC Berkeley 2004).

Determination of specimen status may extend to a group of trees that has importance as a group, even though the individual trees may not in themselves meet the specimen criteria.

Under this program, the retention of existing specimen trees, shrubs and grass areas is a priority in the final design of proposed projects. Projects are reviewed with the UC Berkeley Design Review Committee to minimize impacts to specimen trees. Site preparation is conducted to minimize removal and/or damage of specimen trees or plant species to the fullest feasible extent. 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 of any required limb removal or disturbance within the dripline of trees to be retained. Grading, vegetation removal and replacement plans, where necessary, are coordinated with the Campus Landscape Architect. Specimen trees impacted are replaced by successful transplanting, or must be replaced by new planting at a ratio of 3 to 1 in closest available sizes. The Campus Landscape Architect determines the size of replacement trees. Trees greater in size than available in the nursery trade may he replaced with the largest feasible tree size. Alternatively, smaller trees in greater number may be considered replacement for a single large specimen tree. Disturbed landscaped areas are restored to the full feasible extent (2020 LRDP EIR Vol 1, p. 4.4-19).

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the proposed Project have been reviewed by the UC Berkeley Design Review Committee, based on project specific design guidelines informed by the provisions of the City of Berkeley General Plan, and the 2020 LRDP.

The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon aesthetics. Where applicable, the Project would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice AES-1-b: Major new campus projects would continue to be reviewed at each stage of design by the UC Berkeley Design Review Committee. The provisions of the 2020 LRDP, as well as project specific design guidelines prepared for each such project, would guide these reviews.

2020 LRDP Continuing Best Practice AES-1-e: UC Berkeley would make informational presentations of all major projects in the City Environs in Berkeley to the Berkeley Planning Commission and, if relevant, the Berkeley Landmarks Commission for comment prior to schematic design review by the UC Berkeley Design Review Committee. Major projects in the City Environs in Oakland would similarly be presented to the Oakland Planning Commission and, if relevant, to the Oakland Landmarks Preservation Advisory Board.

2020 LRDP Continuing Best Practice AES-1-f: Each individual project built in the City Environs under the 2020 LRDP would be assessed to determine whether it could pose potential significant aesthetic impacts not anticipated in the 2020 LRDP, and if so, the project would be subject to further evaluation under CEQA.

2020 LRDP Continuing Best Practice AES-1-g: To the extent feasible, University housing projects in the 2020 LRDP Housing Zone would not have a greater number of stories nor have setback dimensions less than could be permitted for a project under the relevant city zoning ordinance as of July 2003.

2020 LRDP Mitigation Measure AES-3-a: Lighting for new development projects would 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 would be in those areas where such features would be incompatible with the visual and/or historic character of the area.

2020 LRDP Mitigation Measure AES-3-b: As part of the design review procedures described in the above Continuing Best Practices, light and glare would be given specific consideration, and measures incorporated into the project design to minimize both. In general, exterior surfaces would not be reflective: architectural screens and shading devices are preferable to reflective glass.

2020 LRDP Continuing Best Practice BIO-1-a: UC Berkeley will continue to implement the Campus Specimen Tree Program to reduce adverse effects to specimen trees and flora. Replacement landscaping will be provided where specimen resources are adversely affected, either through salvage and relocation of existing trees and shrubs or through new plantings of the same genetic strain, as directed by the Campus Landscape Architect.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Aesthetics, the potential environmental impacts resulting from the increase in campus headcount are limited to physical development on the UC Berkeley campus and City Environs. As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be additional to that planned for in the 2020 LRDP. Therefore, such development would not result in additional substantial adverse effects on scenic vistas, substantial damage to scenic resources, new adverse sources of substantial light and glare, or result in a substantial degradation of the existing visual character or quality of the Project Site or its surroundings. Aesthetic impacts would not be more severe than those evaluated in the 2020 LRDP EIR.

AESTHETICS

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Have a substantial adverse effect on a scenic vista?	●	

The 2020 LRDP identified preservation areas, into which new buildings should not intrude, in order to protect scenic vistas on campus. As shown in Figure 7 of the 2020 LRDP, all preservation areas are located within the Campus Park and not within the Adjacent Blocks North subarea. The nearest preservation area is a view and open space preservation zone located across Hearst Avenue to the south of the Project site, covering Founders' Rock and its immediate vicinity. Therefore, no aspect of the Upper Hearst Development is located within a preservation area identified in the 2020 LRDP. The proposed academic and residential buildings would not obstruct views from the Hearst Avenue corridor of Founders' Rock or other preservation areas located in the Campus Park.

As discussed in the 2020 LRDP EIR, the City Environs are mostly flat and densely urbanized, and since future University projects in the City Environs are expected to be of the same general scale as private projects on similar sites, no significant impacts on scenic vistas were anticipated. Policy UD-31 in the City of Berkeley General Plan identifies "significant views" that merit preservation as ones toward the Bay, the East Bay hills, and landmarks such as the Campanile, the Golden Gate Bridge, and Alcatraz Island. Although the 2020 LRDP EIR anticipates no effect from University projects on scenic vistas, the block of Hearst Avenue southeast of the Project site, between La Loma Avenue and Highland Place, offers narrow westward views of the Bay and ridgelines in the North Bay, partially screened by the branches of street trees and existing development. Because the proposed residential building up to six stories tall on the north side of Hearst Avenue would increase the height of structures on the Project site, relative to the existing four-story Upper Hearst parking structure, the Project would result in a slight additional obstruction of existing scenic Bay views from this road corridor. However, as discussed above, existing development and vegetation partially obstructs Bay views from Hearst Avenue near the Project site, and the Upper Hearst Development would not substantially increase the obstruction of these scenic views. Therefore, consistent with the 2020 LRDP EIR, the Upper Hearst Development would have a less than significant impact on scenic vistas.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?		●

The 2020 LRDP EIR found that because no State-designated or eligible scenic highways are located in the vicinity of UC Berkeley, implementation of the 2020 LRDP would have no impact from damaging scenic resources within a scenic highway (2020 LRDP EIR Vol 1, p. 4.1-16). Although the Upper Hearst Development would likely involve removal of a scenic resource, a weeping Camperdown elm tree in the front yard of the historic Beta Theta Pi building, this scenic resource is not visible from a scenic highway. Therefore, consistent with the 2020 LRDP EIR's analysis, the Project would have no impact on scenic resources within a scenic highway.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Create a new source of substantial light or glare which would adversely affect day- or night-time views in the area?		●

The Upper Hearst Development would increase ambient nighttime lighting on the Project site by introducing light emitting diode (LED) fixtures at the exterior of the proposed residential and academic buildings, with higher illumination levels at building entrance and vehicle ramps. The new parking structure would have LED fixtures with occupancy sensors to activate lighting when occupied. Other light fixtures would be installed along pedestrian paths and at featured landscaped elements on the Project site. New exterior light fixtures and illumination through windows from interior lighting would result in an increase in nighttime ambient light levels near the Project site. Exterior lighting also would occasionally be used on the rooftop terrace of the new academic building, during evening events. However, exterior light fixtures would be designed to direct light downward, which would minimize offsite spillover of light. Exterior lighting control will use a combination of photo sensor and automated time switch to increase energy savings. New street trees along the Project site boundary also would partially screen new lighting from the view of adjacent residences. In addition, Mitigation Measures AES-

3-a and AES-3-b in the 2020 LRDP EIR require the use of shields and cut-offs in lighting and the minimal use of reflective exterior surfaces. Implementing these measures would minimize light and glare from the proposed Upper Hearst Development. Therefore the development would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. This impact would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Substantially degrade the existing visual character or quality of the site and its surroundings?	●	

The proposed Project would alter the existing visual character of the Project site, which is located in an urbanized area of Berkeley. Currently, the site has a utilitarian character with a concrete, multi-story parking structure and an at-grade asphalt parking lot, relieved by scattered mature trees including two tall redwoods adjacent to La Loma Avenue. The Project would involve demolition of the Upper Hearst parking structure, demolition of the Ridge Lot, removal of up to 49 trees, and the construction of two new buildings. Both buildings would have a contemporary design with glass, concrete, and metal as the primary exterior materials. These specific contemporary exterior materials would starkly contrast with the wood-shingled cladding of adjacent buildings, including the historic Cloyne Court Student Cooperative, the Foothill Student Housing complex, and residences north of Ridge Road. In addition, the proposed building materials would contrast with the brick and wood cladding of the historic Beta Theta Pi house to the west of the Project site.

The proposed buildings also would increase the scale and massing of structures on the Project site. The residential building, to be built on top of the parking structure, would have a height of up to six stories, while the academic building would be four stories tall. These new buildings would be higher and of greater mass and scale than all buildings in the immediate vicinity. The new academic building, while incorporating a two-story entrance lobby directly adjacent to the Beta Theta Pi house, would appear more than double the height of the one- to two-story Beta Theta Pi house directly adjacent to its principal elevation. In addition, the residential building would rise up to 87 feet high along Hearst Avenue. This increase in scale and massing would intensify the urban character of the largely residential neighborhood.

As detailed in Chapter 5, *Cultural Resources*, the scale, massing, and palette of exterior materials at the Upper Hearst Development would not be compatible with neighboring areas of Berkeley. The residential building would be substantially higher and of greater mass than all residential buildings in the site vicinity. Reaching up to 87 feet in height along Hearst Avenue, the residential building would exceed the height of adjacent residential buildings, which are up to four stories tall. The proposed building massing and design also would depart from and compromise the setting of adjacent historic resources that were built in the First Bay Tradition of architecture. These historic buildings are characterized by a purposeful integration within their hillside topography and landscape, the use of indigenous materials and wood shingles, sheathing, and half-timbering, and a relatively low scale and mass, among other features. By contrast, the new buildings would have a contemporary design, primarily consisting of fiber-cement and aluminum panels, plaster, and aluminum-framed and punched (deeply recessed) windows, among other materials.

Because of the visual incompatibility between the new buildings and the surrounding neighborhood, the Upper Hearst Development would have a detrimental effect on visual character and quality in the Adjacent Blocks North subarea. Whereas the 2020 LRDP EIR anticipated that adherence to design provisions in the 2020 LRDP would prevent degradation of visual character and quality from new development by UC Berkeley, the proposed Upper Hearst Development would still have a detrimental visual effect on the surrounding neighborhood. Implementation of Mitigation Measure CUL-1, as detailed in Chapter 5, *Cultural Resources*, would reduce this impact to the extent feasible through consultation with an architectural historian. However, this mitigation would not resolve incompatibilities relating to the scale and massing of new buildings. A substantially modified project that reduces the proposed building's scale and mass would be necessary to avoid a significant visual impact. Therefore, the Upper Hearst Development would introduce a new significant and unavoidable impact on visual character and quality, which is more severe than the less than significant impact identified by the 2020 LRDP EIR for this issue.

In December 2018, after release of the Notice of Preparation of this SEIR, the State Office of Planning and Research amended the Appendix G checklist question on visual character and quality. For projects in urban areas, such as the Project site, the revised checklist question asks if a project would conflict with applicable zoning or other regulations governing scenic quality. UC Berkeley's Specimen Tree Program has requirements for designated specimen trees which serve to protect scenic quality. Because construction of the Upper Hearst Development would likely require removal of the specimen Camperdown elm tree, UC Berkeley would implement Continuing Best Practice BIO-1-a by replacing landscaping where specimen resources are adversely affected. The Campus Specimen Tree Program would require replacement of this specimen tree at a 3 to 1 ratio in the closest available sizes to the existing tree. By replacing a removed scenic tree with new trees, UC Berkeley would be consistent with the requirements of the Specimen Tree Program. As discussed in Chapter 10, *Land Use*, UC Berkeley is constitutionally exempt from local land use regulations.

The 2020 LRDP EIR found that new development could degrade visual character and quality, but design provisions of the 2020 LRDP would ensure the contribution of projects under the 2020 LRDP would not be cumulatively considerable (2020 LRDP EIR Vol 1, p. 4.1-22). As discussed above, the Upper Hearst Development would introduce a project-level significant impact on visual character and quality, as a result of incompatibility in scale, massing, and design between the proposed buildings and the surrounding neighborhood. However, other cumulative projects are not located in this Northside Berkeley neighborhood to the north of Hearst Avenue and east of Oxford Street and would not affect its visual setting. It is also assumed that other cumulative projects would be consistent with applicable design standards. Therefore, the Project would not contribute to a significant cumulative impact on visual character or quality as identified in the 2020 LRDP EIR.

SUMMARY OF AESTHETICS ANALYSIS

The 2020 LRDP EIR determined that buildout of the 2020 LRDP, which would incorporate design provisions of the 2020 LRDP and mitigation measures relating to light and glare, would not result in significant aesthetic impacts (2020 LRDP EIR Vol 1, p. 4.1-15 to 4.1-19), nor would the project-level implementation of the 2020 LRDP make a cumulatively considerable contribution to adverse aesthetic impacts (2020 LRDP EIR Vol 1, p. 4.1-22 to 4.1-24). As described above, the Upper Hearst Development would not change the less than significant impact conclusions reached in the 2020 LRDP EIR related to scenic vistas, scenic resources, and light and glare associated with implementation of the 2020 LRDP.

However, because the scale, massing, and palette of exterior materials of the proposed Upper Hearst Development would be incompatible with the surrounding neighborhood and most adjacent structures, and only a substantially modified development with lower scale and mass could resolve these compatibility issues, the Project would result in a more severe, significant and unavoidable impact to the visual character and quality of the site and its surroundings.

2. AIR QUALITY

SETTING

The air quality setting of the campus is described in the 2020 LRDP EIR (Section 4.2). The following text summarizes context information for air quality relevant to the Project.

Construction Emissions. Construction activities are a source of dust emissions that can have temporary impacts on local air quality by possibly exceeding State air quality standards. These emissions are generated from land clearing, ground excavation, cut and fill operations, demolition and the construction of project facilities. Dust emissions vary from day to day depending on the level of activity, the specific operations and the prevailing weather. Air pollutant emissions modeling completed for the 2020 LRDP EIR assumed up to one million gross square feet of space could be under construction at any one time under the 2020 LRDP.

Dust from construction and demolition activities would be addressed by Bay Area Air Quality Management District (BAAQMD) Regulation 1, Section 301, which states that sources cannot emit air contaminants that cause nuisances to 'any considerable number of persons or the public,' and by adherence to construction emission mitigation measures incorporated into construction contracts. The Project site is located on an existing at-grade asphalt parking lot and a four-story parking structure.

In December 2015, the California Supreme Court also found that Local agencies need to determine appropriate air quality thresholds of significance based on substantial evidence in the record, based on a December 2015 ruling by the California Supreme Court. Local agencies may rely on the BAAQMD's CEQA Guidelines (updated May 2017) for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures. However, the thresholds are not mandatory and agencies should apply them after determining that they reflect an appropriate measure of a project's impacts. For this SEIR, UC Berkeley has determined that the significance thresholds in the BAAQMD's May 2017 CEQA Guidelines for project operations within the San Francisco Bay Area Air Basin are the most appropriate thresholds for use to determine the air quality impacts of the Project. UC Berkeley has used the previous May 2011 BAAQMD thresholds in past environmental analyses under CEQA and found them based upon substantial evidence to be reasonable thresholds for assessing air quality impacts.
The 2020 LRDP EIR includes mitigation measures and best practices that substantially align with BAAQMD-recommended project-specific control measures for construction; other measures are part of campus best practices in contracting. The eight basic control measures in the most recent BAAQMD CEQA Guidance document (BAAQMD CEQA Guidelines, May 2017, page 8-4) are listed below along with their counterparts in the 2020 LRDP EIR:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

Counterpart: 2020 LRDP Continuing Best Practice AIR-4-a (reprinted below)

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

   Counterpart: 2020 LRDP Continuing Best Practice AIR-4-a (reprinted below)

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

   Counterpart: 2020 LRDP Mitigation Measure AIR-4-a (reprinted below)

4. All vehicle speeds on unpaved roads shall be limited to 15 mph.

   Counterpart: 2020 LRDP Mitigation Measure AIR-4-a (reprinted below)

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

   Counterpart: 2020 LRDP Mitigation Measure AIR-4-a (reprinted below) and 2020 LRDP Continuing Best Practice HYD-2-d which states: UC Berkeley shall 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 shall not be 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.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

   Counterpart: 2020 LRDP EIR Continuing Best Practice AIR-4-b (reprinted below).

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

   Counterpart: Campus contractors are required to comply with applicable law and regulation.

8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

   Counterpart: All campus construction projects have posted contact information as part of standard practice, with a person responsible for action.

All construction projects implementing the 2020 LRDP remain in substantial compliance with BAAQMD-recommended best practices and controls.

At the time of the preparation of the 2020 LRDP EIR, BAAQMD did not require lead agencies to estimate emissions from construction, nor did the guidelines provide any numerical thresholds to evaluate the significance of emissions, should those be quantified. However, for informational purposes, the 2020 LRDP EIR included estimated criteria pollutant construction emissions from the maximum assumed construction scenario under the 2020 LRDP, using the URBEMIS model. A maximum assumed construction area of 1,000,000 gsf was used as a worst-case condition to characterize emissions from 2020 LRDP-related construction. Modeled emissions of ROG and NOx substantially exceed BAAQMD's project level construction-related thresholds included in the May 2017 CEQA Guidelines. See Table 5 below.

Table 5:
2020 LRDP EIR Emissions Modeling Results

Pollutant	BAAQMD Project Construction Threshold (lbs/day)	Estimated Daily Construction-related Emissions, 2020 LRDP (lbs) (Table 4.2-8, 2020 LRDP EIR)
ROG[1]	54	1,123
NO_X[2]	54	1,565
PM_{10} (exhaust)[3]	82	12
$PM_{2.5}$ (exhaust)[4]	54	Not calculated
$PM_{10}/PM_{2.5}$ fugitive dust[5]	Best management practices	Best management practices applied

[1] *ROG = reactive organic gases*

[2] *NO_x = nitrogen oxides*

[3] *PM_{10} = particulate matter 10 micrometers or less in diameter*

[4] *$PM_{2.5}$ = particulate matter 2.5 micrometers or less in diameter*

[5] *Fugitive dust = very small particles suspended in air*

Source: 2020 LRDP EIR Vol 1, p. 4.2-24.

Based on the 2020 LRDP EIR, implementation of the 2020 LRDP would generate emissions exceeding BAAQMD thresholds; however, the 2020 LRDP analysis, conducted for the hypothetical construction of the entirety of the 2020 LRDP program, was conservative. Therefore, this analysis quantifies construction emissions specific to the Upper Hearst Development.

Operational Emissions. The 2020 LRDP EIR concluded that projects implemented as part of the 2020 LRDP, guided by compliance with local regulations, campus policies and programs to reduce emissions and risk of toxic air contaminant (TAC) releases, and incorporating existing best practices and 2020 LRDP EIR mitigation measures would, with the exception of incremental campus growth overall, not result in new significant air quality impacts (2020 LRDP EIR Vol. 1 p. 4.2-20 to 4.2-26). Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, in combination with other foreseeable projects, may result in a cumulatively considerable increase in nonattainment pollutants that conflicts with the Clean Air Plan (2020 LRDP EIR Vol. 1 p. 4.2-31) and could contribute to a cumulatively considerable increase in TACs, primarily from diesel particulate matter, from stationary and area sources (2020 LRDP EIR Vol 1 p. 4.2-33).

2020 LRDP & 2020 LRDP EIR

Implementation of the 2020 LRDP would influence air quality by guiding the location, scale, form and design of new University projects. The 2020 LRDP includes a number of policies and procedures for individual project review to support the Objectives of the 2020 LRDP. While several of the 2020 LRDP Objectives bear directly or indirectly on air quality, two are particularly relevant:

- **Provide the housing, access, and services we require to support a vital intellectual community and promote full engagement in campus life.**
- **Plan every new project as a model of resource conservation and environmental stewardship.**

With respect to access, the 2020 LRDP anticipates increasing the supply of parking to accommodate unmet demand and future growth, yet reducing growth in demand for parking through incentives for alternate travel modes; and collaborating with local cities and transit providers to improve service to the campus. Policies under the second objective include incorporating sustainable design principles into capital investment decisions; developing a campus standard for sustainable design specific to the UC Berkeley site, climate, and facility inventory; designing new campus buildings to a standard equivalent to LEED 2.1; and designing new campus laboratory buildings to a standard equivalent to LEED 2.1 and LABS 21 environmental performance criteria. UC Berkeley updated these policies to reflect current LEED standards in the Addendum #5 to the 2020 LRDP EIR.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the Upper Hearst Development would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon air quality. Where applicable, the Project would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice AIR-4-a: UC Berkeley shall continue to include in all construction contracts the measures specified below to reduce fugitive dust impacts:

- All disturbed areas, including quarry product piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using tarps, water, (non-toxic) chemical stabilizer/suppressant, or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or (non-toxic) chemical stabilizer/suppressant.
- When quarry product or trash materials are transported off-site, all material shall be covered, or at least two feet of freeboard space from the top of the container shall be maintained.

2020 LRDP Mitigation Measure AIR-4-a: In addition, UC Berkeley shall include in all construction contracts the measures specified below to reduce fugitive dust impacts, including but not limited to the following:

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- When demolishing buildings, water shall be applied to all exterior surfaces of the building for dust suppression.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from paved areas of construction sites and from adjacent public streets as necessary. See also CBP HYD 1-b.
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by utilizing sufficient water or by covering.
- Limit traffic speeds on unpaved roads to 15 mph.
- Water blasting shall be used in lieu of dry sand blasting wherever feasible.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with slopes over one percent.
- To the extent feasible, limit area subject to excavation, grading, and other construction activity at any one time.
- Replant vegetation in disturbed areas as quickly as possible.

2020 LRDP Continuing Best Practice AIR-4-b: UC Berkeley shall continue to implement the following control measure to reduce emissions of diesel particulate matter and ozone precursors from construction equipment exhaust:

- Minimize idling time when construction equipment is not in use.

2020 LRDP Mitigation Measure AIR-4-b: UC Berkeley shall implement the following control measures to reduce emissions of diesel particulate matter and ozone precursors from construction equipment exhaust:

- To the extent that equipment is available and cost effective, UC Berkeley shall require contractors to use alternatives to diesel fuel, retrofit existing engines in construction equipment and employ diesel particulate matter exhaust filtration devices.
- To the extent practicable, manage operation of heavy-duty equipment to reduce emissions, including the use of particulate traps.

2020 LRDP Continuing Best Practice AIR-5: UC Berkeley will continue to implement transportation control measures such as supporting voluntary trip-reduction programs, ridesharing, and implementing facilities.

2020 LRDP Mitigation Measure AIR-5: UC Berkeley will work with the City of Berkeley, ABAG and BAAQMD to ensure that emissions directly and indirectly associated with the campus are adequately accounted for and mitigated in applicable air quality planning efforts.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Air Quality, the potential environmental impacts resulting from the increase in campus headcount are influenced both by physical development on the UC Berkeley campus and City Environs (e.g., construction-related and operational emissions of criteria air pollutants and TACs) and by campus population numbers (e.g., increase in energy users, commuters, and sensitive receptors exposed to TACs).

The increase in UC Berkeley's existing and projected campus headcount would not involve physical development beyond that planned for in the 2020 LRDP. Therefore, new development to accommodate a greater headcount would not be additional to growth anticipated in the 2020 LRDP EIR. As noted above, Mitigation Measure AIR-5 and Continuing Best Practice AIR-5 in the 2020 LRDP EIR would require UC Berkeley to work with the City of Berkeley, ABAG, and BAAQMD to ensure that campus growth is accurately addressed in the Clean Air Plan. Because the increase in UC Berkeley's existing and projected campus headcount would not require additional physical development beyond that anticipated in the 2020 LRDP EIR, it would not result in additional short-term emissions from construction activity or long-term emissions from the operation of structures, and it would not expose sensitive receptors to excessive TAC concentrations beyond the level anticipated in the 2020 LRDP EIR.

The Trip Generation Comparison memorandum prepared by Fehr & Peers (Appendix G) estimates that despite an increase in campus headcount relative to levels previously analyzed in the 2020 LRDP EIR, campus-wide daily and peak-hour trip generation has decreased from the 2001-2002 school year to existing conditions, would still decrease through the 2022-2023 school year, and would be below levels anticipated for 2020 in the 2020 LRDP EIR. Therefore, the additional campus headcount would not result in increased mobile emissions relative to the 2020 LRDP EIR's analysis or in increased traffic congestion that could expose sensitive receptors to substantial carbon monoxide (CO) concentrations. An increased headcount could result in a modest increase in water demand and energy used to transport water. However, as discussed in Chapter 7, *Greenhouse Gas Emissions*, UC Berkeley is required to implement the UC's Carbon Neutrality Initiative, which would aggressively improve energy efficiency in buildings and increase utilization of renewable energy sources. Therefore, increased campus headcount would not result in greater emissions than anticipated in 2020 LRDP EIR and would not conflict with implementation of the Clean Air Plan. Although more people on campus would be exposed to air pollutants, campus occupants would not be exposed to a human cancer risk that exceeds the applicable significance threshold. Furthermore, the increase in UC Berkeley's current and projected campus headcount would not result in additional exposure of people to objectionable odors because, as discussed below, campus facilities do not commonly generate objectionable odors. No increase in the severity of the significant and unavoidable air quality impacts identified in the 2020 LRDP EIR would occur.

AIR QUALITY

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Conflict with or obstruct implementation of the applicable air quality plan?		●

The 2020 LRDP EIR found that operational emissions from implementation of the 2020 LRDP may hinder attainment of the Clean Air Plan, because the 2020 LRDP EIR conservatively assumed that growth under the 2020 LRDP was not included in local area projections (2020 LRDP EIR Vol 1, p. 4.2-26). The 2020 LRDP EIR analysis anticipated up to 2,200,000 million net new gross square feet within the area governed by the 2020 LRDP. As only about 43 percent of the development that was proposed in the 2020 LRDP and analyzed in the 2020 LRDP EIR has occurred, the proposed 37,000 square-foot academic building would fit within this development envelope and would not be additional to the growth anticipated in the 2020 LRDP EIR.

The 2020 LRDP EIR concluded that campus growth may not be consistent with the most recent Clean Air Plan. However, it found that with implementation of the mitigation measures in the 2020 LRDP EIR and coordinated planning efforts with the BAAQMD, the impact from operational emissions would be fully addressed, and future projects implementing the 2020 LRDP would likely be in compliance with air quality plans (2020 LRDP EIR Vol 1, p. 4.2-28 to 4.2-29). As prescribed by Mitigation Measure AIR-5 and Continuing Best Practice AIR-5 in the 2020 LRDP EIR, UC Berkeley would work with the City of Berkeley, ABAG, and BAAQMD to ensure that campus growth is accurately addressed in the Clean Air Plan, and would continue to develop and implement transportation control measures. Therefore, with implementation of these measures, the Upper Hearst Development would not conflict with applicable air quality plans.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, in combination with other foreseeable projects, may result in a cumulatively considerable increase in nonattainment pollutants that conflicts with the Clean Air Plan (2020 LRDP FEIR Vol. 1, p. 4.2-31) and could contribute to a cumulatively considerable increase in toxic air contaminants, primarily from diesel particulate matter, from stationary and area sources (2020 LRDP FEIR Vol 1 p. 4.2-33). Because the proposed Upper Hearst Development would be within the development parameters of the 2020 LRDP, it would not result in additional growth that generates greater air pollution than anticipated in the 2020 LRDP EIR. Therefore, the Project would not considerably contribute to a significant impact related to conflicts with the Clean Air Plan.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		●

The 2020 LRDP EIR examined the potential for vehicle and stationary source emissions under the 2020 LRDP to violate state and federal air quality standards or contribute to existing air quality violations, and determined implementation of the 2020 LRDP would not violate the CO standard or expose sensitive receptors to substantial CO concentrations (2020 LRDP EIR Vol 1, p. 4.2-20).

The 2020 LRDP EIR further found that traffic associated with development under the 2020 LRDP would not contribute to a cumulatively considerable increase in or expose receptors to substantial CO concentrations. Using measured CO concentrations associated with peak hour vehicle volumes for the intersection of Mission Boulevard and Jackson Street/Foothill Boulevard in Hayward as a 'worst-case' comparable in the same air basin as the campus, the 2020 LRDP EIR found changes at local intersections resulting from implementation of the 2020 LRDP would not result in significant impacts. As discussed in the Transportation analysis, the Upper Hearst Development would reduce trip generation as compared to the 2020 LRDP EIR, because of the proposed reduction of parking spaces on-site and the constrained supply of nearby on-street parking. Therefore, the Upper Hearst Development would be within the scope of the 2020 LRDP EIR and would have a less than significant impact from contributions to air quality violations.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Expose sensitive receptors to substantial air pollutant concentrations?		●

Independently and in contrast to some types of manufacturing or production uses, University operations are not typically significant emission sources. The 2020 LRDP EIR evaluated whether construction and development activities under the 2020 LRDP would expose sensitive receptors, including nearby schools, to substantial pollutant concentrations. UC Berkeley completed a Health Risk Assessment for the 2020 LRDP EIR, which evaluated risks from TACs to sensitive receptors, including schools, hospitals, day care centers and senior care facilities. The 2020 LRDP EIR evaluated the maximum exposure risk to sensitive receptors from conditions existing at the time, and estimated the maximum exposure risk to sensitive receptors with build out of the 2020 LRDP program (2020 LRDP EIR Vol 1, p. 4.2-15 and 4.2-22).

The Upper Hearst Development would not include laboratory research space or other uses that are considered a stationary pollutant source that may impact nearby receptors. Therefore, it would not contribute excess pollutant concentrations beyond those analyzed in the 2020 LRDP EIR, and this impact would be less than significant.

The 2020 LRDP EIR found that cumulative projects would generate new TAC emissions, resulting in a significant and unavoidable air quality impact (2020 LRDP EIR Vol 1, p. 4.2-33 to 4.2-34). The construction of current cumulative UC Berkeley and LBNL projects that would involve TAC emissions during building operations, such as from emergency generators, would contribute to this impact. By increasing the number of people exposed to air pollution, the Upper Hearst Development may incrementally contribute to this significant cumulative impact identified in the 2020 LRDP EIR.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	●	

Based on available construction details for the Upper Hearst Development, construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 computer model. Average daily emissions from construction were calculated in CalEEMod, including both on-site and off-site activities. On-site activities would consist of the operation of off-road construction equipment, as well

as on-site truck travel (e.g., haul trucks, water trucks, dump trucks, and concrete trucks), whereas off-site sources would be emissions from construction vehicle trips. It was assumed that demolition of the existing parking areas would require the export of approximately 7,000 cubic yards of material from the Project site via truck trips. In addition, it was assumed that the construction would result in a net export of 13,007 cubic yards of soil.

Table 6 shows maximum daily construction emissions results from the Upper Hearst Development activities modeled in CalEEMod and compares them to the BAAQMD thresholds. The modeled emissions do not account for measures required by BAAQMD to reduce dust emissions or for implementation of the required mitigation measures and continuing best practices included in the 2020 LRDP EIR. Therefore, actual emissions during demolition and construction of buildings would be lower than shown in Table 6. Construction emissions would not result in a cumulatively considerable increase of any criteria pollutant, and the development would not contribute additional pollutant concentrations beyond those analyzed in the 2020 LRDP EIR. Consequently, the Upper Hearst Development would have a less than significant impact from emissions of criteria air pollutants.

Table 6:
Maximum Daily On-Site and Off-Site
Construction Air Pollutant Emissions

	Emissions (lbs/day)			
	ROG	**NO_X**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**
2019	2.3	22.7	1.3	1.2
2020	3.0	21.5	0.8	0.8
2021	2.7	19.7	0.7	0.7
Maximum lbs/day[1]	**3.0**	**21.5**	**1.3**	**1.2**
BAAQMD Thresholds	54	54	82	54
Threshold Exceeded?	**No**	**No**	**No**	**No**

[1] *Maximum daily on and off-site emissions based on highest day in any construction year, i.e. 2019, 2020, or 2021.*
Source: CalEEMod; see Appendix C for calculations.

Operation of the proposed buildings would also generate long-term emissions associated with energy and water use, and other on-site activities. However, the Upper Hearst Development would reduce vehicle trip generation compared to existing conditions because of the reduction in parking spaces on-site and the constrained supply on nearby on-street parking. Therefore, mobile emissions generated by activities on the Project site would decrease. The increase in square footage and beds also would be within the development parameters of the 2020 LRDP EIR and therefore would not exceed overall operational emissions from such development. Therefore, operational emissions would not considerably contribute to the significant and unavoidable impact identified in the 2020 LRDP EIR from development under the 2020 LRDP.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
5. Expose people to substantial levels of toxic air contaminants (TACs), such that the exposure could cause an incremental human cancer risk greater than 10 in one million or exceed a hazard index of one for the maximally exposed individual?		●

As described in Air Quality item 3 above, the Upper Hearst Development would not result in a new source of substantial air pollutant emissions. People occupying the new buildings also would not be subject to substantial levels of TACs. As discussed in the 2020 LRDP EIR, campus occupants would not be exposed to a human cancer risk above the significance thresholds of 10 in one million or a hazard index of greater than one for the maximally exposed individual (MEI) (2020 LRDP EIR Vol 1, p. 4.2-21). Therefore, the Upper Hearst Development would not contribute excess pollutant concentrations beyond those analyzed in the 2020 LRDP EIR, and this impact would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
6. Cause objectionable odors affecting a substantial number of people?		●

Existing campus facilities are not commonly sources of odors, and no element of the proposed Project is anticipated to result in new odors that may affect a substantial number of people. This impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

SUMMARY OF AIR QUALITY ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, guided by compliance with regulation, campus policies and programs to reduce emissions and risk of TAC releases, would, with one exception, not result in new significant air quality impacts (2020 LRDP EIR Vol 1 p. 4.2-20 to 4.2-26). As the one exception, the 2020 LRDP EIR conservatively estimated that the BAAQMD Clean Air Plan did not include an increment for growth at UC Berkeley, and found that campus growth overall may not comply with the Clean Air Plan, and may result in a cumulatively considerable increase in non-attainment pollutants that conflicts with the Clean Air Plan (2020 LRDP EIR Vol 1 p. 4.2-26, and p. 4.2-31). With implementation of mitigation measures and continuing best practices in the 2020 LRDP EIR, the Upper Hearst Development would not conflict with applicable air quality plans.

Construction period emissions were evaluated and disclosed in the 2020 LRDP EIR, as described above. Emissions conservatively calculated for the entire 2020 LRDP program would exceed project-level emission guidelines. As discussed in Air Quality item 4 above, daily construction emissions associated with the Upper Hearst Development would not exceed the May 2017 BAAQMD project thresholds**.**

As discussed in the analysis above, the Project would not result in significant impacts related to air quality and the environmental impacts resulting from the Project are within the scope of the 2020 LRDP EIR analysis.

3. BIOLOGICAL RESOURCES

SETTING

The following summarizes information for biological resources relevant to the proposed Project, based on the setting described in the 2020 LRDP EIR (Section 4.3), site-specific tree data, and a field visit to the Project site on May 4, 2018.

The Project site is in the City Environs, the area identified in the 2020 LRDP as the lands to the south, north and west of the Campus Park. The City Environs are extensively developed, primarily with residential, commercial, and institutional uses. Sensitive vegetation and wildlife resources are generally absent in the City Environs. Consistent with this setting, the Project site is developed with a parking structure, a surface parking lot, and associated landscaping. Impervious surfaces and structures provide little opportunity for use by wildlife, and species found in the vicinity are typical of those found in urbanized areas.

Trees and shrubs on-site may provide marginal nesting and foraging opportunities for both resident and migratory bird species. As discussed in Section 3.2, approximately 49 trees, including two prominent evergreen coast redwoods (*Sequoia sempervirens*), are located within and adjacent to the Project site. Both redwood trees are approximately 30 inches in diameter and are located between the northeastern driveway to the Upper Hearst parking structure and La Loma Avenue.

Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Acts or other regulations, as well as species considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Because the Project site is almost entirely paved for parking and is located in a highly urbanized environment, it does not provide suitable habitat for special-status plant or animal species.

2020 LRDP & 2020 LRDP EIR

The provisions of the 2020 LRDP would eliminate or minimize effects on biological resources by guiding the location, scale, form, and design of new University projects. The 2020 LRDP includes a number of policies and procedures for individual project review to support its Objectives. While several of the 2020 LRDP Objectives apply directly or indirectly to biological resources, one is particularly relevant:

- **Plan every new project as a model of resource conservation and environmental stewardship.**

The City Environs framework in the 2020 LRDP states that in response to future space demand by campus programs, capital investment on Adjacent Blocks through 2020 may result in a net increase in program space of up to 1,250,000 gsf, and up to 1,900 net new parking spaces. New space on the Adjacent Blocks would be produced by more intensive redevelopment of existing University owned sites. New space may also be produced on other sites by UC Berkeley directly or through joint ventures. Because the City Environs is heavily developed, there are no specific guidelines or development parameters affecting biological resources within the Adjacent Blocks North subarea.

Specimen Trees. As discussed under Aesthetics, UC Berkeley has a Campus Specimen Tree Program. The Campus Landscape Architect determines if a tree has specimen status, based on its health, whether it poses a hazard, and several other criteria.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the proposed Project would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon biological resources. Where applicable, the Project would incorporate the following mitigation measures and/or implement best practices. 2020 LRDP Mitigation Measure BIO-1-a focuses on projects implemented in the Campus Park and Hill Campus; however, the mitigation measure is applicable to all areas where trees providing potential nesting habitat would be removed. Thus, for the purpose of this evaluation, Mitigation Measure BIO-1-a also applies to the Project.

2020 LRDP Mitigation Measure BIO-1-a: UC Berkeley will, to the full feasible extent, avoid the disturbance or removal of nests of raptors and other special-status bird species when in active use. A pre-construction nesting survey for loggerhead shrike or raptors, covering a 100 yard perimeter of the project site, would be conducted during the months of March through July prior to commencement of any project that may impact suitable nesting habitat on the Campus Park and Hill Campus. The survey would be conducted by a qualified biologist no more than 30 days prior to initiation of disturbance to potential nesting habitat. In the Hill Campus, surveys would be conducted for new construction projects involving removal of trees and other natural vegetation. In the Campus Park, surveys would be conducted for construction projects involving removal of mature trees within 100 feet of a Natural Area, Strawberry Creek, and the Hill Campus. If any of these species are found within the survey area, grading and construction in the area would not commence, or would continue only after the nests are protected by an adequate setback approved by a qualified biologist. To the full feasible extent, the nest location would be preserved, and alteration would only be allowed if a qualified biologist verifies that birds have either not begun egg-laying and incubation, or that the juveniles from those nests are foraging independently and capable of survival. A pre-construction survey is not required if construction activities commence during the non-nesting season (August through February).

2020 LRDP Continuing Best Practice BIO-1-a: UC Berkeley will continue to implement the Campus Specimen Tree Program to reduce adverse effects to specimen trees and flora. Replacement landscaping will be provided where specimen resources are adversely affected, either through salvage and relocation of existing trees and shrubs or through new plantings of the same genetic strain, as directed by the Campus Landscape Architect.

2020 LRDP Continuing Best Practice BIO-1-c: Because trees and other vegetation require routine maintenance, as trees age and become senescent, UC Berkeley would continue to undertake trimming, thinning, or removal, particularly if trees become a safety hazard.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Biological Resources, the potential environmental impacts resulting from the increase in campus headcount are limited to physical development on the UC Berkeley campus and the City Environs. As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be

additional to that planned for in the 2020 LRDP and therefore would not result in more severe impacts on biological resources than analyzed in the 2020 LRDP EIR, including impacts on special-status species, sensitive natural communities, wetlands, and wildlife movement. The increase in UC Berkeley's existing and projected campus headcount also would not result in any conflict with ordinances protecting biological resources.

BIOLOGICAL RESOURCES

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or US Fish and Wildlife Service (USFWS)?		●

The biological resources evaluation in the 2020 LRDP EIR focuses on potential impacts to the natural areas occurring within both the Hill Campus and Campus Park areas. No specific discussion is provided for the City Environs area. As stated in the 2020 LRDP EIR, the urban lands surrounding Campus Park have limited value to special-status wildlife because of the extent of existing development and intensity of human activity. Impervious surfaces and structures provide little opportunity for use by wildlife, and species found in the vicinity are typically observed in urbanized areas. Because of the extent of past development, the Adjacent Blocks North subarea does not provide suitable habitat for special-status plant or animal species. However, while the possibility is remote, raptors and/or migratory bird species could nest within adjacent trees.

Tree removal or construction in the vicinity of a nest in active use could result in its destruction or abandonment. Conducting a preconstruction nesting survey and suspending construction as warranted, as required by Mitigation Measure BIO-1-a in the 2020 LRDP EIR, would serve to avoid the potential loss of any active raptor nests (2020 LRDP EIR Vol 1, p. 4.3-24). This survey would cover a 100- yard perimeter of the proposed Project site during the months of March through July, no more than 30 days prior to commencement of activity which could impact suitable nesting habitat (Mitigation BIO-1-a), if construction activity commences during the nesting season.

Consistent with the 2020 LRDP EIR's analysis, implementation of Mitigation Measure BIO-1-a would ensure that special-status species and unique vegetation are adequately identified and protected, resulting in a less than significant impact to special-status species and no considerable contribution to a cumulative impact.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS?		●

The Project site is developed with paved parking areas and associated landscaping. No riparian areas or sensitive natural communities as identified in local or regional plans, policies or regulations by the

California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS) occur on or near the Project site. Thus, the Upper Hearst Development would have no impact on these resources and would not considerably contribute to a related cumulative impact.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption or other means?		●

The Project site is almost entirely paved with parking areas, except for landscaped margins around the Upper Hearst parking structure and Ridge Lot. No federally protected wetlands as defined by Section 404 of the Clean Water Act were observed during the May 4, 2018, site visit. Furthermore, the U.S Fish and Wildlife Service's National Wetlands Inventory does not identify wetlands on or adjacent to the Project site (U.S. Fish and Wildlife Service 2019). Therefore, the Upper Hearst Development would have no impact on federally protected wetlands and would not considerably contribute to a related cumulative impact.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. 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?		●

The Adjacent Blocks North subarea is located within the urbanized City Environs land use area. The Project site is almost entirely paved for parking areas and does not link habitat areas nor provide the only or a unique means of travel for wildlife within the area. No native resident or migratory fish species or wildlife species use the City Environs area or Project site as a migratory corridor or nursery site. Implementation of Mitigation Measure BIO-1-a in the 2020 LRDP EIR would avoid or minimize potential impacts to migratory bird species and/or nesting raptors using trees or shrubs around the perimeter of the site. Therefore, consistent with the 2020 LRDP EIR's analysis, the Upper Hearst Development would have a less than significant impact on wildlife movement and would not considerably contribute to a related cumulative impact.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
5. Conflict with any local policies or ordinances protecting biological resources?		●

Section 4.3.3 of the 2020 LRDP EIR identifies local ordinances that address sensitive biological resources. The City of Berkeley Coast Live Oak Tree Removal Ordinance (No. 6462-N.S.) and Preservation and Restoration of Natural Watercourses Ordinance (No. 5961) apply to resources within the City Environs surrounding Campus Park. However, local ordinances do not apply to campus projects, because the University of California (UC) is constitutionally exempt from local land use controls whenever using property under its control in furtherance of its educational mission. No natural watercourses occur on or in proximity to the Project site.

UC Berkeley's Campus Landscape Architect has surveyed the existing trees on and adjacent to the Project site to determine if they meet criteria in the Campus Specimen Tree Program for designation as specimen trees, especially a Camperdown elm tree in the front yard of the Beta Theta Pi house and two coast redwood trees that are approximately 30" in diameter, located between the northeastern driveway to the Upper Hearst parking structure and La Loma Avenue. As discussed in Section 3.5, *Project Description*, the Camperdown elm tree is a mature and prominent example of an uncommon tree species, as well as a character-defining feature of the Beta Theta Pi house's landscape. UC Berkeley's Campus Landscape Architect determined in January 2019 that, for its historical value, this tree qualifies as a "specimen tree" under the Campus Specimen Tree Program. However, it was determined that the redwood trees do not meet UC Berkeley's historical, educational, or aesthetic criteria to be considered "specimen trees." Although these trees are mature and partially obstruct views of the on-site parking lots from street level, they are not an integral part of the architectural theme of the Upper Hearst parking structure, nor do they play an important role in framing or screening the structure.

Construction of the Upper Hearst Development would likely require removal of the specimen Camperdown elm tree to accommodate a new accessible pathway to the proposed academic building. If this specimen tree is removed, as anticipated, UC Berkeley would implement Continuing Best Practice BIO-1-a by replacing landscaping where specimen resources are adversely affected. The Campus Specimen Tree Program would require replacement of this specimen tree at a 3 to 1 ratio in the closest available sizes to the existing tree. By replacing a removed scenic tree with new trees, UC Berkeley would ensure that the Upper Hearst Development is consistent with the requirements of the Campus Specimen Tree Program. No other local ordinances protecting biological resources are applicable to the proposed Project. Thus, the Upper Hearst Development would not conflict with local policies or ordinances protecting biological resources. Consistent with the 2020 LRDP EIR's analysis, this impact would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
6. Conflict with any adopted Habitat Conservation Plan, Natural Communities Conservation Plan or other approved local, regional or state habitat conservation plan?		●

The Adjacent Blocks North subarea is not located in any area designated for an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. No impact would occur.

SUMMARY OF BIOLOGICAL RESOURCES ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would not result in new significant impacts upon biological resources (2020 LRDP EIR Vol 1, p. 4.3-22 to 4.3-30). The Project site is in the Adjacent Blocks North subarea. This is an urbanized area in Berkeley adjacent to the Campus Park land use area as defined within the 2020 LRDP. No sensitive species are known to occur at the Project site. Measures to reduce possible impacts to nesting species would be implemented as part of the Upper Hearst Development. As discussed in the analysis above, the Upper Hearst Development would not result in significant impacts related to biological resources, and these impacts would be consistent with the 2020 LRDP EIR's analysis for biological resources.

4. CLIMATE CHANGE

SEE DISCUSSION UNDER **GREENHOUSE GAS EMISSIONS**, BELOW

5. CULTURAL RESOURCES

SETTING

The cultural resources setting of the UC Berkeley campus is described in the 2020 LRDP EIR (Section 4.4). The following text summarizes information for cultural resources relevant to the Project site. Tribal cultural resources and tribal consultation under California Assembly Bill 52 are discussed separately in Chapter 15, *Tribal Cultural Resources*.

ARCHAEOLOGICAL RESOURCES

Prehistoric archaeological sites have been recorded on the UC Berkeley campus. Based on a records search in the California Historical Resources Information System at the Northwest Information Center, the archaeological sites in closest proximity to the Project site include a human burial recovered in the 1950s during ground clearing activities near Strawberry Creek and a shell midden, both just under 0.5-mile from the Project site. Per the 2020 LRDP EIR, given the long development history of the adjacent blocks, the likelihood of any significant prehistoric archaeological resources remaining intact is slim. There are no known historic archaeological resources on the Project site. However, the Project site was formerly occupied by Newman Hall, and it is possible that structural remains or historic refuse associated with the buildings are present beneath the asphalt pavement.

PALEONTOLOGICAL RESOURCES

No paleontological resources are known to exist within the Adjacent Blocks area; however, based upon local geology, it is possible that excavations within previously undisturbed areas that contain Quaternary alluvium could encounter limited fossils.

HISTORICAL RESOURCES

In accordance with CEQA, qualifying historical resources include buildings, historic districts, structures, objects, or sites that are either eligible for or designated in a national, state, and/or local register.

According to the 2020 LRDP EIR, historical resources located within the geographic scope of the 2020 LRDP fall within two categories: Primary Historical Resources and Secondary Historical Resources. Primary Historical Resources include those listed on the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR). Secondary Historical Resources include resources listed on local registers, as well as resources listed on the state Inventory. Secondary Historical Resources are presumed significant *unless* a preponderance of evidence demonstrates otherwise.

In order to characterize the historic setting and historical resources within or adjacent to the Project site, Rincon Consultants conducted a site visit, a records search of the California Historical Resources Information System at the Northwest Information Center, as well as focused archival and online research. Archives consulted included the City of Berkeley Public Library, including the Central Library History Room. A. In addition, this analysis considered two reports provided to UC Berkeley:

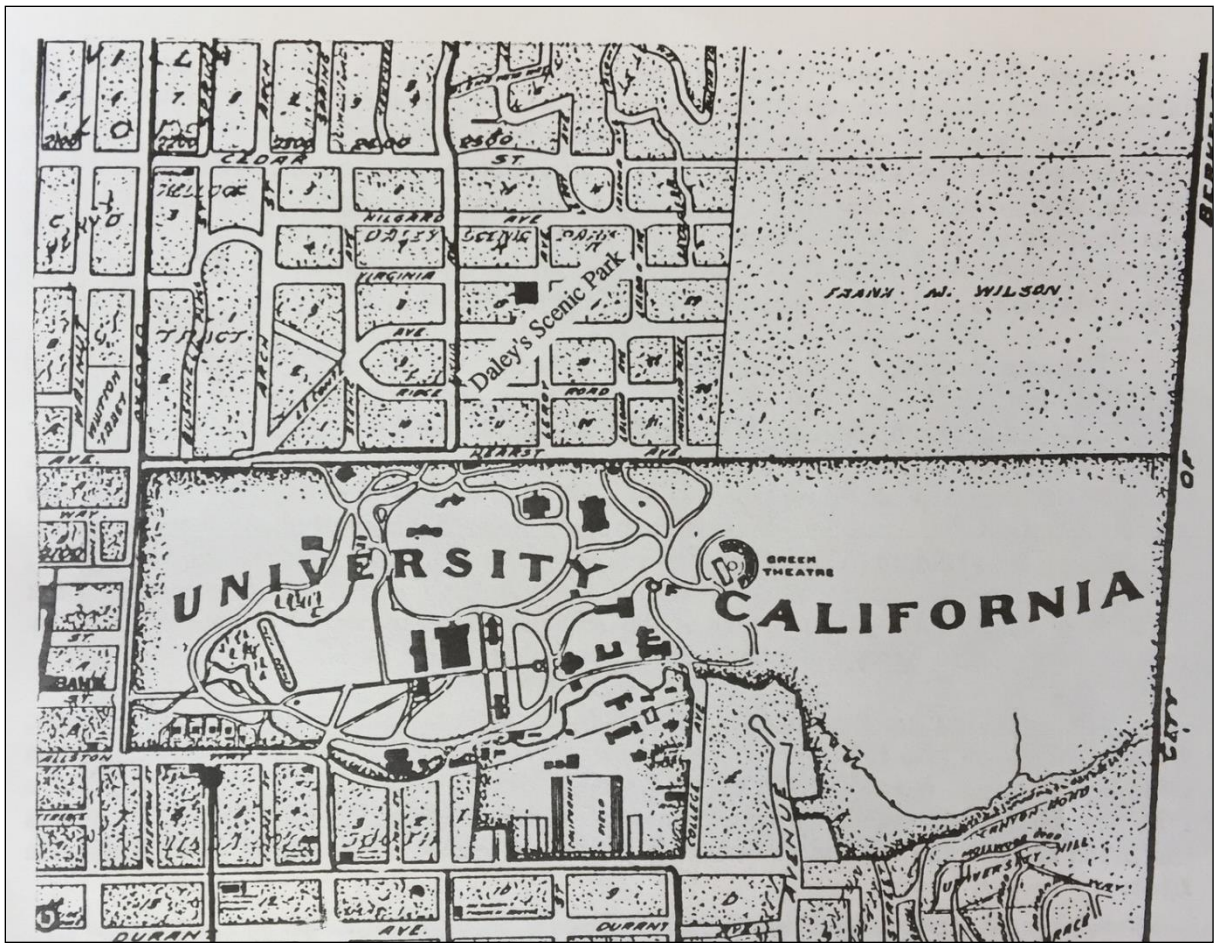
- Preservation Architecture. "Historic Structures Report, Cloyne Court, 2600 Ridge Road, Berkeley, California." July 2007. Prepared for the University Students Cooperative Association, Berkeley, CA.
- Siegel & Strain. "Historic Resources Inventory, University of California, Berkeley: 2607 Hearst, Graduate School of Public Policy (Formerly the Beta Theta Pi Fraternity House). 7 March 1997. Prepared for University of California, Berkeley, Planning, Design and Construction.

The following sections describe the historic setting and identified historical resources within or immediately adjacent to the Project site.

Historic Setting and Context

The Project site is located in the Adjacent Blocks North subarea defined by the 2020 LRDP, a neighborhood also known as Northside. The site also falls within an area of the North Berkeley Hills that became a renowned center for Arts and Crafts architecture. When residential settlement first began in earnest, in the late nineteenth century, the tract now encompassing the Project site was known as Daley's Scenic Park, the "first residential subdivision in the North Berkeley Hills," as shown in Figure 19 (Stern Cerny 1990). It was here that Bernard Maybeck, Charles Keeler, and associates first began exploring and defining Bay Area Arts and Crafts architecture. The Berkeley Fire of 1923 destroyed many of the original homes and buildings in Daley's Scenic Park, including the residences of Bernard Maybeck and John Galen Howard. The Project site, which is adjacent to three surviving Arts and Crafts buildings from this early era, occupies a portion of Daley's Scenic Park that was just outside the 1923 fire line (Stern Cerny 1990; Bruce et al.).

FIGURE 19 DALEY'S SCENIC TRACT, 1914, NORTH BERKELEY HILLS



Source: Stern Cerny, 1990, Northside, p. 7.

The First Bay Tradition and the Arts and Crafts Movement in the North Berkeley Hills

In the late nineteenth and early twentieth century, Daley's Scenic Tract became home to a new architectural idiom, inspired by the Arts and Crafts movement, known as the First Bay Tradition. The North Berkeley Hills provided the inspiration and setting for the First Bay Tradition. Early practitioners in Daley's Scenic Tract included architects such as Bernard Maybeck, Julia Morgan, John Galen Howard, Ernest and Almeric Coxhead, John Hudson Thomas, and James Placheck (many of whom not only practiced but also resided in the neighborhood). In this way, the North Berkeley Hills became an important center for innovative, regionally inflected Arts and Crafts architecture.

The First Bay Tradition expanded on and redefined the Arts and Crafts architecture emerging on the East Coast in the work of architects such as Henry Hobson Richardson and McKim, Mead and White. One of the most significant West Coast innovations, and one that is still evident in the Northside neighborhood, is the focus on site-specific design and creating connections between the indoors and outdoors, buildings, landscaping, and setting:

> What the Bay Tradition added to the Shingle Style was environment, and in particular the generosity of and therefore, connection to outdoor space, open and cheerful western skies,

> hills alternating gold and green, and sculptural woodlands. In fact, it is the connections between setting, landscape and architecture where early Bay Area buildings fully succeeded the Shingle-Style of their Eastern mentors. (Preservation Architecture 2007)

In this way, the woodsy, hillside setting and indoor-outdoor integration became a critical feature for the new First Bay Tradition. As William Wilson Wurster wrote, "The First Bay Tradition went beyond a strictly architectural expression; it also reflected a life style" (Stern Cerny 1990). Commentators at the time recognized this "unique quality" and cohesive, distinctive neighborhood character it created; as a writer for *The San Francisco Chronicle* noted in 1904:

> 'Ramble if you will on the Berkeley slopes north of University of California campus to have your faith in human kind renewed. Wander up Ridge Road until you come to the shingle and clinker brick houses set in the midst of gardens, a lesson in peaceful, harmonious, artistic and natural living, an architectural picture rarely attained' and where '90% of the houses are built in brown shingle.' (Stern Cerny 1990)

In this way, the First Bay Tradition was as much a cultural movement as it was an aesthetic movement. For example, in 1898, a group of women came together in the Northside neighborhood to form the "Hillside Club." With members including the wives of Bernard Maybeck and John Galen Howard, the goal of the Hillside Club was to "'encourage artistic homes built of materials complementing the natural beauty of the Berkeley Hills'":

> Members of the Hillside Club…advocated the 'relationship between nature and simplicity, truth and beauty': design should be 'free of superficial ornament, architecture should be rational, simple, expressive, never ambitious or pretentious, well adapted to their sites, color should not be glaring: essentially, the whole should appear to have grown out of the hillside and to be a part of it.' (Stern Cerny 1990)

These efforts were successful enough that, by the early twentieth century, "'the North side of the Berkeley Campus became the prime example of enlightened environmental planning…where city and country blended harmoniously'" (Stern Cerny 1990). In these years, Northside took on a cohesive feeling and character.

Available literature on the First Bay Tradition and West Coast Arts and Crafts architecture illustrates the important role played by the North Berkeley Hills themselves in the development of the Bay Area version of the Arts and Crafts movement:

> 'The First Bay Tradition' is a term that has been given to a new direction in architectural design begun in San Francisco about 1890. It took root and flowered most distinctively in the North Berkeley Hills just north of the University of California Campus.
>
> While it had its beginnings in the Arts and Crafts Movement in England in the mid-nineteenth century, it was brought to the Bay Area by a group of architects which included Ernest Coxhead, Bernard Maybeck, A.C. Schweinfurth, Willis Polk and later John Galen Howard and Julia Morgan. These architects were classically trained and were inspired by the wide vistas of open rolling hills and winding verdant creek beds. Their designs expressed a philosophy characterized by the use of materials indigenous to the area, in a straight forward and simple manner: structural members were left exposed and became the decorative

> elements, wood was left unpainted, exteriors were often covered with shingles, although board and batten siding as well as half timbering, brick and stucco were also used; subtle historical references are found occasionally. Landscaping featured informal gardens, native stone-work and vine covered arbors, the over-all effect was intended to be compatible with the natural beauty of the Bay Area.
>
> The architectural idiom was so influential that between 1900-1915 the majority of homes built in North Berkeley, branching out from the Daley Scenic Park Tract, were built in this simple rustic style. In other California cities rustic shingles homes were referred to as 'Berkeley Brown Shingles.' (Stern Cerny 1990)

Immediately adjacent to the Project site are three survivors of this early era of Northside development and the First Bay Tradition: the Beta Theta Pi house (west of and within Project site), Cloyne Court (north and west of Project site), and Phi Kappa Psi, 2627 Ridge Road (immediately north across Ridge Road). Each building is a known historical resource pursuant to CEQA. The following section describes these historical resources.

Individual Historical Resources

According to the 2020 LRDP EIR and the California Office of Historic Resources Inventory, the following four historical resources are located within and/or immediately adjacent to the proposed Project site:

1. Beta Theta Pi house (2607 Hearst Avenue), architect Ernest Coxhead, 1893
   Source: 2020 LRDP
   2020 LRDP Status: Secondary Historical Resource, Adjacent Blocks North subarea; eligible for NRHP and CRHR listing; City of Berkeley Landmark

2. Cloyne Court (2600 Ridge Road), architect John Galen Howard, 1904
   Source: 2020 LRDP
   2020 LRDP Status: Primary Historical Resource, Adjacent Blocks North subarea; designated in the NRHP and CRHR; City of Berkeley Landmark

3. Founders' Rock, Hearst Avenue
   Source: 2020 LRDP
   2020 LRDP Status: Primary Historical Resource, Campus Park area; designated in the NRHP and as a State Historic Landmark

4. Phi Kappa Psi, 2627 Ridge Road, 1901
   Source: California Office of Historic Preservation Historic Resources Inventory
   Historic Resource Status: 3S (individually eligible for the NRHP)

Review of previous evaluations and site inspections indicate that Cloyne Court, the Beta Theta Pi house, and Phi Kappa Psi are significant, intact examples of the First Bay Tradition of the Arts and Crafts movement in Berkeley, significant at the national level.

The Beta Theta Pi house is historically significant as an "early, seminal example of the First Bay Area Tradition, a regional architectural movement identified by simple, rustic design executed primarily in unpainted redwood. The building is also significant for its association with important figures in Bay Area architecture: the original architect, Ernest Coxhead; the architects of two later additions, John Bakewell

and Arthur Brown, Jr.; Charles Keeler, a key player in the Berkeley Hillside and Bay Area Arts and Crafts movements; and Loring P. Rixford, San Francisco City Architect" (Siegel & Strain 1997). As designed by pioneering Arts and Crafts architects Ernest Coxhead, Bakewell and Brown, and Charles Keeler, the building's design is "pioneering in the simplicity of its geometric massing; its profile an assemblage of parts treated with subtle differences, like a small medieval village. A radical departure from its Victorian contemporaries" (Stern Cerny 1990). Similarly, the Beta Theta Pi house, with its low, varied mass, expansive plan, and orientation to the outdoors, fits within the First Bay Tradition.

Cloyne Court is significant and designated in the NRHP under Criterion C "as an example of the work of John Galen Howard and as an example of the First Bay Tradition style. Howard, Supervising Architect for UC Berkeley and Director of its School of Architecture, worked mainly in the Beaux Arts idiom, but explored the woodsy, Bay Area tradition through some of his work. Cloyne Court Hotel was Howard's first large scale shingled building and is highly reflective of a style that had a huge influence on design in the Bay Area" (Preservation Architecture 2007). In Cloyne Court, the courtyard building plan, the low mass and scale, tailored to fit the sloping hillside, the generous expanses of fenestration facing the landscaping, and the use of natural materials like wood, simply treated, are all reflections of this architectural idiom. As observed by architectural historian Susan Cerny, although Cloyne Court is "a large building,"

> [I]t fits the tenets of the Hillside Club by being entirely clad in unpainted brown shingles, set sufficiently back from the streets to allow for large trees and shrubs and its wide "U" shape provides for a generous south facing garden courtyard giving testimony to the attention paid to gardens and the quiet enjoyment of nature which was an important part of 'building with nature.' (Stern Cerny 1990)

Located just north of the Project site, the Phi Kappa Psi building, constructed in 1901 at 2627 Ridge Road, is part of the First Bay Tradition architecture that defined Daley's Scenic Tract.

The significance of Cloyne Court, the Beta Theta Pi house, and Phi Kappa Psi extends beyond their architectural designs and individual site plans to include the surrounding hillside setting, landscaping, and neighborhood context. These buildings are among only 50 to have survived the 1923 Berkeley Fire, which destroyed nearly 500 buildings in an area "where the First Bay Tradition dominated the built environment before 1923" (Preservation Architecture 2007). Recent infill construction includes UC Berkeley's Foothill Student Housing building, in the northeast corner of the intersection of Hearst and La Loma avenues. The wood-shingle cladding, relatively low height, roof features, U-shape plan, and architectural detailing of the building allow it to blend in with the character and setting of the Arts and Crafts buildings of the neighborhood.

The Upper Hearst parking structure located on the Project site is not identified in the 2020 LRDP as either a Primary or Secondary Historical Resource. UC Berkeley has made the determination that the Upper Hearst parking structure is not a qualifying historical resource. Although the scope of this historic analysis does not include an independent evaluation of the eligibility of properties for historic designation, site observation indicates that additional nearby properties appear to be at least 50 years of age and may represent historical resources.

The following figures present a photographic overview of the Beta Theta Pi house and Cloyne Court, both located within and immediately adjacent to the Project site.

FIGURE 20 BETA THETA PI HOUSE (1893) AND UPPER HEARST PARKING STRUCTURE, SOUTHWEST PERSPECTIVE (TOP) AND SOUTH PERSPECTIVE (BOTTOM)

FIGURE 21 BETA THETA PI & UPPER HEARST PARKING STRUCTURE, SOUTHEASTERN PERSPECTIVE (TOP) AND SOUTHWESTERN PERSPECTIVE (BOTTOM)

FIGURE 22 UPPER HEARST PARKING STRUCTURE AND STUDENT HOUSING, HEARST AND LA LOMA AVENUES, SOUTHERN PERSPECTIVE (TOP) AND SOUTHEASTERN PERSPECTIVE (BOTTOM)

FIGURE 23 UPPER HEARST PARKING STRUCTURE FROM RIDGE ROAD, NORTHERN PERSPECTIVE (TOP) AND HISTORIC CLOYNE COURT (1904), NORTHEASTERN PERSPECTIVE (BOTTOM)

FIGURE 24 ENTRANCE, CLOYNE COURT, NORTHERN PERSPECTIVE (TOP) AND NORTHWESTERN PERSPECTIVE FROM RIDGE ROAD (BOTTOM)

REGULATORY FRAMEWORK

This section presents a focused version of the regulatory framework provided in the 2020 LRDP EIR. This information provides the necessary backdrop and context for the impacts analysis and findings presented below. Refer to the Cultural Resources analysis in the 2020 LRDP EIR (Section 4.4) for a discussion of the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR).

Resources nominated to the CRHR must retain enough of their historic integrity to convey the reasons for their significance.

Secretary of the Interior's Standards for the Treatment of Historic Properties

According to CEQA, a project that complies with the National Park Service *Secretary's Standards for the Treatment of Historic Properties* (*Secretary's Standards)* is generally considered to be a project that will not cause a significant adverse impact to a historical resource (Weeks and Grimmer 2001). The 2020 LRDP EIR also recognizes compliance with the *Secretary's Standards* as a means for avoiding, mitigating or lessening impacts to historical resources. As stated in the 2020 LRDP EIR, if a project could cause a substantial adverse change in features that convey the significance of a primary or secondary resource, an Historic Structures Assessment should be prepared: "Recommendations of the HSA made in accordance with the Secretary of the Interior's Standards would be implemented, in consultation with the UC Berkeley Design Review Committee and the State Historic Preservation Office, such that the integrity of the significant resource is preserved and protected" (2020 LRDP EIR Vol 1, p. 4.4-54 to 4.4-55).

The goal of the *Secretary's Standards* is to outline treatment approaches that allow for the retention of and/or sensitive changes to the distinctive materials and features that lend a historical resource its significance. When changes are carried out according to these standards, the historical resource will retain its historic integrity and thereby continue to convey the reasons for its significance. The *Secretary's Standards* and Guidelines offer general recommendations for preserving, maintaining, repairing, and replacing historical materials and features, as well as designing new additions or making alterations.

These standards also provide guidance on new construction adjacent to historic districts and properties, in order to ensure that there are no indirect adverse impacts to historic properties.
The ten *Secretary's Standards for Rehabilitation* are:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

In order to determine whether a project complies with the *Secretary's Standards*, this analysis considers the "character-defining," or historically significant, features of the historical resources. Character-defining features can include the overall mass and scale of the building, its setting and relationship to the street, building materials, architectural detailing, site design, landscaping and hardscaping, as well as spatial relationships between buildings and open space.

Alterations and replacement of character-defining features over time can impair a historic property's integrity and result in a loss of historic status. Therefore, to ensure that a historic property remains eligible after implementation of projects, character-defining features should be identified and preserved.

"Historic Integrity" Defined

In addition to meeting the criteria described above, in order to qualify for the NRHP and the CRHR, a property must retain "historic integrity" such that it continues to convey the reasons for its historic significance. According to National Register Bulletin No. 15, in order to retain historic integrity and qualify for the NRHP, a property ideally must have all of these seven qualities:

1. Location – the place where the historic property was constructed or where an event occurred;
2. Design – the combination of elements that create the form, plan, space, and style of a property;
3. Setting – the physical environment of a historic property;
4. 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.
5. Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
6. Feeling – a property's expression of the aesthetic or historic sense of a particular period of time;
7. Association – the direct link between an important historic event or person and a historic property.

For the purposes of this *Secretary's Standards* analysis, the aspects of setting and feeling are most germane. The National Park Service defines the quality of setting in the following way:

> Setting is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the character of the place in which the property played its historical role. It involves how, not just where, the property is situated and its relationship to surrounding features and open space. Setting often reflects the basic physical conditions under which a property was built and the functions it was intended to serve. In addition, the way in which a property is positioned in its environment can reflect the designer's concept of nature and aesthetic preferences.
>
> The physical features that constitute the setting of a historic property can be either natural or manmade, including such elements as: topographic features (a gorge or the crest of a hill); vegetation; simple manmade features (paths or fences); and relationships between buildings and other features or open space. These features and their relationships should be examined not only within the exact boundaries of the property, but also between the property and its surroundings. This is particularly important for districts. (National Park Service 1990)

The National Park Service defines the quality of feeling in the following way: Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character (National Park Service 1990).

2020 LRDP and 2020 LRDP EIR

In recognition of the fact that more than a third of UC Berkeley buildings are over 50 years old; and thus, potentially eligible for the National Register, the 2020 LRDP includes several objectives that seek to protect potential historic resources for future generations. They include:

- **Plan every new project as a model of resource conservation and environmental stewardship.**
- **Maintain and enhance the image and experience of the campus, and preserve our historic legacy of landscape and architecture.**
- **Plan every new project to respect and enhance the character, livability, and cultural vitality of our city environs.**

As noted in the 2020 LRDP, UC Berkeley is home to numerous historical resources "of great distinction," from the Classical Core and its Beaux Arts masterpieces, featuring the work of renowned campus architect John Galen Howard, to Mid-Century Modern and contemporary buildings, all woven together in a unified, cohesive campus with landscaped open areas and circulation corridors.

The 2020 LRDP has policies, objectives, and guidelines to guide development in "City Interface" and "City Environs" areas. The Project site falls within the Adjacent Blocks North subarea of the "City Environs." According to the 2020 LRDP, the vicinity of the Project site, in addition to falling within the City Environs zone, also comprises a "picturesque ensemble" of related buildings. Spanning several city blocks along Hearst and La Loma avenues, this "picturesque ensemble" of related buildings extends along La Loma Avenue from the Foothill Student Center toward the Greek Theatre (moving southeast along La Loma Avenue) and down both the north and south sides of Hearst Avenue, down to the western edge of Cloyne Court (UC Berkeley 2005). This "picturesque ensemble" of buildings includes

Cloyne Court, the Beta Theta Pi house, the Foothill Student Center, which was constructed more recently but echoes the Arts and Crafts design of the aforementioned historic properties, among other properties.

2020 LRDP Continuing Best Practice: City of Berkeley Landmarks Commission Feedback

According to the 2020 LRDP, informational presentations are made by UC Berkeley of all major projects within the Adjacent Blocks area to the City of Berkeley Planning Commission, and, if relevant, the City of Berkeley Landmarks Preservation Commission, for comment prior to schematic design review by the UC Berkeley Design Review Committee.

On 5 July 2018, schematic plans for the Upper Hearst Development were presented to the City of Berkeley Landmarks Preservation Commission. The Landmarks Preservation Commission expressed concerns regarding the mass, scale, and non-contextual architectural design and palette of materials of the Upper Hearst Development, vis-à-vis neighboring historic resources, among other concerns.

2020 LRDP Continuing Best Practice: City of Berkeley Design Review Committee Feedback

According to the 2020 LRDP, "as part of project review, the Design Review Committee should assess potential adverse impacts on cultural resources and recommend measures to minimize such impacts" (UC Berkeley 2005). On 21 June 2018, schematic plans for the proposed Project were presented to the City of Berkeley Design Review Committee. The Design Review Committee also expressed concerns regarding the mass, scale, and non-contextual architectural design and palette of materials of the Upper Hearst Development, vis-à-vis neighboring historic resources, among other concerns.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP on cultural resources. Where applicable, the Upper Hearst Development would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice CUL-1: In the event that paleontological resource evidence or a unique geological feature is identified during project planning or construction, the work would stop immediately and the find would be protected until its significance can be determined by a qualified paleontologist or geologist. If the resource is determined to be a 'unique resource,' a mitigation plan would be formulated and implemented to appropriately protect the significance of the resource by preservation, documentation, and/or removal, prior to recommencing activities.

2020 LRDP Continuing Best Practice CUL-2-a: If a project could cause a substantial adverse change in features that convey the significance of a primary or secondary resource, an Historic Structures Assessment (HSA) would be prepared. Recommendations of the HSA made in accordance with the Secretary of the Interior's Standards would be implemented, in consultation with the UC Berkeley Design Review Committee and the State Historic Preservation Office, such that the integrity of the significant resource is preserved and protected. Copies of all reports would be filed in the University Archives/Bancroft Library.

2020 LRDP Continuing Best Practice CUL-2-b: UC Berkeley would make informational presentations of all major projects in the City Environs in Berkeley to the Berkeley Planning Commission and, if relevant, the Berkeley Landmarks Commission for comment prior to schematic design review by the UC Berkeley Design Review Committee. Major projects in the City Environs in Oakland would similarly be presented

to the Oakland Planning Commission and, if relevant, to the Oakland Landmarks Preservation Advisory Board.

2020 LRDP Mitigation Measure CUL-3: If, in furtherance of the educational mission of the University, a project would require the demolition of a primary or secondary resource, or the alteration of such a resource in a manner not in conformance with the Secretary of the Interior's Standards, the resource would be recorded to archival standards prior to its demolition or alteration.

2020 LRDP Continuing Best Practice CUL-4-a: In the event resources are determined to be present at a project site, the following actions would be implemented as appropriate to the resource and the proposed disturbance:

- UC Berkeley shall retain a qualified archaeologist to conduct a subsurface investigation of the project site, to ascertain the extent of the deposit of any buried archaeological materials relative to the project's area of potential effects. The archaeologist would prepare a site record and file it with the California Historical Resource Information System.
- If the resource extends into the project's area of potential effects, the resource would be evaluated by a qualified archaeologist. UC Berkeley as lead agency would consider this evaluation in determining whether the resource qualifies as a historical resource or a unique archaeological resource under the criteria of CEQA Guidelines section 15064.5. If the resource does not qualify, or if no resource is present within the project area of potential effects, this would be noted in the environmental document and no further mitigation is required unless there is a discovery during construction (see below).
- If a resource within the project area of potential effect is determined to qualify as an historical resource or a unique archaeological resource in accordance with CEQA, UC Berkeley shall consult with a qualified archaeologist to mitigate the effect through data recovery if appropriate to the resource, or to consider means of avoiding or reducing ground disturbance within the site boundaries, including minor modifications of building footprint, landscape modification, the placement of protective fill, the establishment of a preservation easement, or other means that would permit avoidance or substantial preservation in place of the resource. If further data recovery, avoidance or substantial preservation in place is not feasible, UC Berkeley shall implement LRDP Mitigation Measure CUL-5, outlined below.
- A written report of the results of investigations would be prepared by a qualified archaeologist and filed with the University Archives/ Bancroft Library and the Northwest Information Center.

2020 LRDP Mitigation Measure CUL-4-b: If a resource is discovered during construction (whether or not an archaeologist is present), 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, as outlined in Continuing Best Practice CUL-3-a. UC Berkeley would implement the recommendations of the archaeologist.

2020 LRDP Continuing Best Practice CUL-4-b: In the event human or suspected human remains are discovered, UC Berkeley would notify the County Coroner who would determine whether the remains are subject to his or her authority. The Coroner would notify the Native American Heritage Commission if the remains are Native American. UC Berkeley would comply with the provisions of Public Resources

Code Section 5097.98 and CEQA Guidelines Section 15064.5(d) regarding identification and involvement of the Native American Most Likely Descendant and with the provisions of the California Native American Graves Protection and Repatriation Act to ensure that the remains and any associated artifacts recovered are repatriated to the appropriate group, if requested.

2020 LRDP Continuing Best Practice CUL-4-c: Prior to disturbing the soil, contractors shall be notified that they are required to watch for potential archaeological sites and artifacts and to notify UC Berkeley if any are found. In the event of a find, UC Berkeley shall implement 2020 LRDP Mitigation Measure CUL-4-b.

2020 LRDP Mitigation Measure CUL-5: If, in furtherance of the educational mission of the University, a project would require damage to or demolition of a significant archaeological resource, a qualified archaeologist shall, in consultation with UC Berkeley:

- Prepare a research design and archaeological data recovery plan that would attempt to capture those categories of data for which the site is significant, and implement the data recovery plan prior to or during development of the site.
- Perform appropriate technical analyses, prepare a full written report and file it with the appropriate information center, and provide for the permanent curation of recovered materials.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Cultural Resources, the potential environmental impacts resulting from the increase in campus headcount are limited to physical development on the UC Berkeley campus and City Environs. As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be additional to that planned for in the 2020 LRDP. Therefore, the increase in UC Berkeley's existing and projected campus headcount would not result in more severe impacts to cultural resources than analyzed in the 2020 LRDP EIR, including impacts on historical resources, paleontological resources, archaeological resources, or human remains.

CULTURAL RESOURCES

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Cause a substantial adverse change in the significance of a historical resource as defined in CCR Section 15064.5?	●	

Impacts to significant cultural resources that affect the characteristics of the resource that qualify it for the NRHP or adversely alter the significance of a resource listed on or eligible for the CRHR are considered a significant effect on the environment. In terms of historical resources, these impacts could result from "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings

such that the significance of an historical resource would be materially impaired" (CEQA Guidelines, Section 15064.5 [b][1], 2000). Material impairment is defined as demolition or alteration "in an adverse manner [of] those characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register." (CEQA Guidelines Section 15064.5[b][2][A]).

This impact analysis considers the Upper Hearst Development's consistency with the *Secretary's Standards* to determine its impact on historic resources. As stated above, according to the CEQA Guidelines, projects that comply with the *Secretary's Standards* are generally considered to be projects resulting in less than significant impacts to historic resources. Adherence to these standards can help ensure that in-fill projects adjacent to historic buildings or within historic neighborhoods are compatible and complementary and do not destroy the setting and feeling of the historic property.

The Upper Hearst Development would have the most direct effect on the Upper Hearst parking structure, which would be demolished to accommodate new residential and academic buildings. UC Berkeley has made a determination that the Upper Hearst parking structure is not a qualifying historical resource. Therefore, demolition of the parking structure would not have a direct adverse effect on historical resources.

As stated above, the Project site is adjacent to four known historic properties: Beta Theta Pi, constructed in 1893 (eligible for the NRHP); Cloyne Court, constructed in 1904 (listed in the NRHP and as a State Historic Landmark); Founders' Rock, a natural landscape feature with a period of significance of 1860 (listed in the NRHP); and the Phi Kappa Psi house, located at 2627 Ridge Road immediately north from the Project site (listed in the California Historical Resources Inventory).

Project Compliance with the *Secretary's Standards*

For Founders' Rock, the Upper Hearst Development complies with the *Secretary's Standards*. The Project would not involve physical changes to Founders' Rock. The proposed buildings, on the north side of Hearst Avenue at La Loma Avenue, also are far enough away from Founders' Rock, on the south side of Hearst Avenue, that they comply with the *Secretary's Standards* relating to adjacent new construction and would not adversely affect the setting of this historical resource (Standards No. 9 and 10). Therefore, the Upper Hearst Development would not result in significant adverse impacts to Founders' Rock, and no further analysis is needed.

Two elements of the Upper Hearst Development would be inconsistent with several of the *Secretary's Standards*: (1) the proposed demolition/removal and replacement of character-defining site design features of the Beta Theta Pi house, and (2) the scale, mass, and architectural design of the new academic building and new residential building adjacent to Cloyne Court, the Beta Theta Pi house, and Phi Kappa Psi.

1. **Project Element**: Demolition/removal/replacement of the character-defining site plan and site design of the Beta Theta Pi house.

   This Project element includes the demolition and replacement of most of the primary site design of the Beta Theta Pi house. These plans include removal of 32 feet of the stream-rock retaining wall fronting Beta Theta Pi, as well as removal of historic hardscaping, concrete stairs and railings,

approximately 72 feet of brick walkway, and landscaping. These features would be replaced with a concrete, switch-back access ramp, steel hand-railings, and other hardscaping features that would reconfigure and reorient the site design of Beta Theta Pi toward that of the new academic building.

Applicable Standards: *Secretary's Standards for Rehabilitation* Nos. 1, 2, 4, 5, 9, and 10

Discussion: Due to the demolition and removal of distinctive features, materials, and spatial relationships that characterize the historic property and its site design, the Upper Hearst Development would be inconsistent with *Secretary's Standards for Rehabilitation* Nos. 1, 2, 4, 5, 9, 10. Taken together, the existing building setback, landscaping/hardscaping, stream-rock retaining walls, brick pavers, and stairs and railings form the historic property's site design along the principal elevation. This site design clearly reflects a residential fraternity house sited in harmony within its hillside setting, with its generous setback, landscaped lawn and mature trees, stream-rock retaining wall, concrete stairs, brick walkway, and other hardscaping features. For the purposes of this analysis, these features are considered to be character-defining features of primary significance for the resource.

The removal of a 32-foot portion of the stream-rock retaining wall, approximately 72 feet of the brick walkway, as well as removal of most of the front lawn, would alter the setting and feeling of the Beta Theta Pi house. The expanse of the stream-rock retaining wall along the north side of Hearst Avenue also creates a cohesive, unified street line for the historic property and neighboring properties on the block. As part of the historic site design, these features contribute to the integrity of setting and feeling of the historic property, which was specifically designed to complement and reflect its hillside setting, topography, and landscape.

As a result of the Upper Hearst Development, the historic property would no longer read as a stand-alone historical resource, with an independent site and parcel. The new development would envelop the historic property within the site plan of the adjacent academic building, which bears little resemblance to the historic property in terms of materials, design, scale/mass, and setting. In this way, the Project does not conform with a number of the *Secretary's Standards* (Nos. 1, 2, 4, 5, 9, and 10) related to retaining distinctive features, materials, and spatial relationships that characterize the property.

Although the setting and feeling of the Beta Theta Pi house have already been altered through construction of the Upper Heart parking structure, the scale of the parking structure is markedly lower than that of the proposed buildings. In addition, the parking structure does not extend into the site plan or stand-alone parcel of the Beta Theta Pi house. The parking structure's utilitarian, neutral design and palette of materials also do not detract from the historical resource to the point that the setting and feeling of the historical resource are significantly altered.

Without retention of the Beta Theta Pi house's historic site design and plan, including the stream-rock retaining wall, brick walkway, and most of the front lawn, the Upper Hearst Development would not be consistent with the *Secretary's Standards*.

2. **Project Element**: Construction of a new academic building and residential building, sheathed in concrete and aluminum panels, with punched aluminum windows, rising at the highest point to 87

feet tall along Hearst Avenue, immediately adjacent to the Beta Theta Pi house, Cloyne Court, and Phi Kappa Psi.

Applicable Standards: *Secretary's Standards for Rehabilitation* Nos. 9 and 10.

Discussion: Due to the scale, mass, and architectural design/materials of the new buildings in relation to the Beta Theta Pi house, Cloyne Court, and Phi Kappa Psi, the Upper Hearst Development would be inconsistent with *Secretary's Standards for Rehabilitation* No. 9. This standard specifies that "New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment."

The proposed height, mass, and architectural design and materials of the Upper Hearst Development depart from the historic setting of the adjacent historical resources. Designed in the First Bay Tradition to reflect their North Berkeley Hills setting, these historic buildings are significant expressions, by master architects, of the indigenous Arts and Crafts movement that emerged in the North Berkeley Hills in the late nineteenth and early twentieth century. The setting, purposeful integration of the buildings within the hillside topography and landscape, the use of indigenous materials and wood shingles, sheathing, and half-timbering, the high degree of craftsmanship, the balanced design composition, and explicitly domestic scale of the historic properties, expressed through their relatively low scale and mass, are all character-defining features. The new academic building would depart and detract from all of these character-defining features.

The new buildings would be significantly higher and of greater mass and scale than all buildings in the immediate vicinity, including Phi Kappa Psi on the north side of Ridge Road. To the immediate east of the Beta Theta Pi house, the new academic building would consist of two volumes: a lower wing, rising approximately 50 feet, which would serve as an entrance patio, and a higher, four-story classroom wing, rising approximately 75 feet. This building, while incorporating a two-story entrance lobby directly adjacent to the Beta Theta Pi house, would appear more than double the height of the historic one- to two-story Beta Theta Pi house directly adjacent to its principal elevation. In addition, the residential building would be up to 87 feet in height along Hearst Avenue. This addition shifts the setting of the historic properties and the character of neighborhood overall.

Given the relatively lower, one- to two-story scale of the historic properties, this Project element does not meet Standard No. 9's guideline that new construction adjacent to historic resources "shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment."

Sheathing materials on the exterior walls of the proposed buildings would have a contemporary design, primarily consisting of fiber-cement and aluminum panels, plaster, and aluminum-framed, punched (deeply recessed) windows, among other materials. The buildings would be capped with a standing-seam metal roof. Although a contemporary design could comply with the *Secretary's Standards*, the current plans are not sufficiently scaled to or designed in the context of the adjacent historical resources or neighborhood overall to achieve this result. The mass, scale, design, and

materials of the new buildings would significantly change and impair the integrity of setting of three historical resources, the Beta Theta Pi house, Cloyne Court, and Phi Kappa Psi.

In summary, the Upper Hearst Development would impair the integrity of two historical resources identified in the 2020 LRDP: the Beta Theta Pi house and Cloyne Court. It would also impair the integrity of a third known historical resource, Phi Kappa Psi, located at 2627 Ridge Road immediately north of the Project site. Therefore, the Upper Hearst Development would have a potentially significant impact on historical resources, requiring mitigation.

Mitigation Measure CUL-1 would require consultation with an architectural historian to consider modifications to the design of proposed buildings that would improve compatibility with neighboring historical resources.

MM-CUL-1: Prior to approval of final design plans for the Upper Hearst Development, UC Berkeley shall retain a historic architect meeting the National Park Service Professional Qualifications Standards for historic architecture to review plans for the proposed academic and residential buildings. The historic architect shall provide input and refinements to the design team regarding modifications to the palette of exterior materials to improve compatibility with neighboring historical resources and compliance with the Secretary of the Interior's Standards. This review shall include, but not be limited to, suggestions for incorporating exterior materials, such as wood or brick, in the design.

Although implementation of Mitigation Measure CUL-1 could improve the compatibility of exterior materials used in the proposed buildings with neighboring historic buildings, the Upper Hearst Development still would have adverse effects on historical resources from removal of a rock retaining wall and brick pathways at the Beta Theta Pi house and from incompatibility of scale and massing. Therefore, this impact would be significant and unavoidable. A significant impact on historical resources would be within the scope of the 2020 LRDP EIR's analysis, which found that new development to further UC Berkeley's educational mission could alter historical resources in a manner not consistent with the *Secretary's Standards*, resulting in a significant and unavoidable impact.

The 2020 LRDP EIR determined that cumulative development at UC Berkeley and LBNL, in combination with other cumulative projects, could have a combined adverse effect on the historical resource base, resulting in a significant and unavoidable impact (2020 LRDP EIR Vol 1, p. 4.4-61). As discussed above, the Upper Hearst Development would degrade the integrity of feeling and setting of historical resources adjacent to the Project site. Therefore, the Project would contribute to a significant and unavoidable cumulative impact on historical resources. Implementation of Mitigation Measure CUL-1, however, would reduce this impact to the extent feasible through the inclusion of exterior materials in building design that are more compatible with nearby historical resources.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Directly or indirectly destroy a unique paleontological resource, or site, or unique geologic feature?		●

As noted in the 2020 LRDP EIR, no known paleontological resources or unique geologic features occur on the UC Berkeley campus (2020 LRDP EIR Vol 1, p. 4.4-48). However, ground disturbance during construction of the Upper Hearst Development could potentially unearth and damage a limited number of fossils. Consistent with Continuing Best Practice CUL-1 in the 2020 LRDP EIR, if paleontological resources are encountered, work must stop immediately and any found resource would be protected until a qualified paleontologist or geologist determines its significance. If the resource is found to be unique, UC Berkeley would prepare and implement a mitigation plan to protect it by preservation, documentation and/or removal, prior to resuming construction activity. Implementation of Continuing Best Practice CUL-1 would minimize potential impacts to paleontological resources. Therefore, consistent with the 2020 LRDP EIR's analysis, the Upper Hearst Development would have a less than significant impact on such resources.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5?		●

In conformance with Mitigation Measure CUL-4-a in the 2020 LRDP EIR, UC Berkeley has created a confidential map of known sensitive archaeological resources on campus. This map indicates that no known archaeological resources occur on the Project site. However, ground disturbance during construction of the Upper Hearst Development could potentially unearth historic archaeological resources associated with a former building beneath the site's existing paved surface. From roughly 1905 through the 1960s, the Project site was occupied by Newman Hall/Holy Spirit Parish, the Roman Catholic student center associated with UC Berkeley. In accordance with Continuing Best Practice CUL-4-a in the 2020 LRDP EIR, if a cultural resource within the Project site is determined to qualify as an historical resource or unique archaeological resource in accordance with CEQA, UC Berkeley must retain a qualified archaeologist to conduct a subsurface investigation of the Project site to ascertain the extent of any archaeological deposit. If resources are present, they must be evaluated for significance under CEQA. If the find is determined to qualify as an historical and/or unique archaeological resource, UC Berkeley must consider avoidance. If avoidance is not feasible, Mitigation Measure CUL-5 in the 2020 LRDP EIR would require that a qualified archaeologist prepare a research design and data recovery plan to mitigate impacts to the resource. If an unanticipated resource is discovered during construction, Mitigation Measure CUL-4-b in the 2020 LRDP EIR would require that all soil disturbing work within 35 feet of the find must cease and a qualified archaeologist be contacted to examine the deposit and assess appropriate action. By avoiding or treating potential archaeological resources in conformance with the protocols established by the 2020 LRDP EIR (Mitigation Measures CUL-4-b and CUL-5 and Continuing Best Practices CUL-4-a, CUL-4-b, CUL-4-c), the Upper Hearst Development would also have a less than significant impact on such resources.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, would result in a significant and unavoidable cumulative impact on the archaeological resource

base (2020 LRDP EIR Vol. 1, p.4.4-61). Although the Project could potentially result in disturbance of archaeological resources, it would not involve additional ground-disturbing development than planned for in the 2020 LRDP. Furthermore, implementation of mitigation measures and continuing best practices in the 2020 LRDP would reduce the Project's potential contribution to the loss of archaeological resources, to the extent feasible. Therefore, the Project would contribute to a significant and unavoidable cumulative impact on archaeological resources, but not to a greater extent than identified in the 2020 LRDP EIR.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Disturb any human remains, including those interred outside of formal cemeteries?		●

Because the Project site is fully developed, it is not anticipated that ground disturbance would uncover human remains. However, in the event human or suspected human remains are discovered, UC Berkeley would implement Continuing Best Practice CUL-4-b from the 2020 LRDP EIR to notify the County Coroner, who would in turn notify the Native American Heritage Commission if the remains are Native American. UC Berkeley would comply with the provisions of Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(d) regarding identification and involvement of the Native American Most Likely Descendant and with the provisions of the California Native American Graves Protection and Repatriation Act to ensure that the remains and any associated artifacts recovered are repatriated to the appropriate group, if requested. Therefore, consistent with the 2020 LRDP EIR's analysis, the Upper Hearst Development would have a less than significant impact on human remains.

SUMMARY OF CULTURAL RESOURCES ANALYSIS

The 2020 LRDP EIR found that certain projects to further UC Berkeley's educational mission could alter historical resources in a manner not consistent with the *Secretary's Standards*, resulting in a significant and unavoidable impact (2020 LRDP EIR Vol 1, p. 4.4-55). While the Upper Hearst Development would have an adverse indirect effect on adjacent historical resources including the Beta Theta Pi house, Cloyne Court, and the Phi Kappa Psi house, resulting in a significant and unavoidable impact, this would be within the scope of the 2020 LRDP EIR's analysis. Moreover, implementation of Mitigation Measure CUL-1 would reduce this impact to the extent feasible, by requiring UC Berkeley to retain a historic architect to provide input and refinements to the design team to improve compatibility with neighboring historical resources.

The 2020 LRDP EIR also found that impacts to archaeological resources, human remains, and paleontological resources would be less than significant with implementation of mitigation measures and continuing best practices, except that impacts to archaeological resources could be significant and unavoidable for certain projects that further UC Berkeley's education mission (2020 LRDP EIR Vol 1, p. 4.4-54 to 4.4-57). It is not anticipated that construction of the Upper Hearst Development would result in disturbance of such cultural resources; however, in the event of their discovery on the Project site, implementation of mitigation measures and continuing best practices in the 2020 LRDP EIR would reduce these impacts to less than significant.

6. GEOLOGY, SEISMICITY, AND SOILS

SETTING

The geological setting of the campus is described in the 2020 LRDP EIR (Section 4.5). The following text summarizes context information for geology, seismicity, and soils relevant to the Project.

The San Francisco Bay Area is one of the more seismically active areas in the world, based on its record of historical earthquakes and its position relative to the North American and Pacific Plate boundaries. To evaluate geologic, seismic, and soil-based hazards on the Project site, Langan Engineering and Environmental Services, Inc. (Langan) prepared an initial geotechnical investigation in February 2018 and an addendum focusing on fault hazards in October 2018 (see Appendix D). Based on these reports, the active Hayward fault passes through the eastern part of the campus, approximately 0.1 miles east of the Project site. The northeastern half of the Project site is mapped as within an Earthquake Fault Zone that encompasses two traces of the Hayward fault. For new developments in an Earthquake Fault Zone, the Alquist-Priolo Earthquake Fault Zoning Act requires an investigation of fault hazards. The U.S. Geological Survey (USGS) maps the two traces of the Hayward fault as approximately 530 feet and 725 feet northeast of the Project site, respectively.

In addition, the Louderback Shear Zone, a 200-foot-wide corridor associated with the Louderback fault, is mapped within the Project site (Appendix D). To investigate whether this fault has been active in the Holocene era (approximately the last 12,000 years), Langan conducted multiple tests of subsurface conditions on the Project site, such as exploratory borings into bedrock and seismic refraction surveys, as well as a comprehensive review of previous studies of faulting in the vicinity of the Project site. As a result, Langan concluded that the Louderback fault trace beneath the Project site has not been active in the Holocene era and does not currently pose a hazard of surface rupture.

A study assessing the probability of earthquakes across California was released in 2015 by the USGS Working Group on California Earthquake Probabilities (Field et al. 2015). The results of the study indicate there is a 72 percent probability of at least one magnitude 6.7 or greater earthquake striking the Bay Area in the 30-year period after 2007. As part of the study, individual probabilities for generating a magnitude 6.7 quake or greater were assigned to specific known major faults. The study estimated that the Hayward-Rodgers Creek fault has a 31 percent probability of generating a magnitude of 6.7 or greater in the analyzed 30-year period.

Groundwater levels in the vicinity of the Project site are expected to range from 10 to 40 feet below the ground surface (Appendix D). The surface parking lot is generally underlain by up to nine feet of heterogeneous fill, consisting mainly of stiff to hard clay and sandy clay, and very dense gravel. The fill under this portion of the site generally has a high to moderate expansion potential. The existing concrete garage slab is underlain by approximately six inches of gravel fill over hard clay, sandy clay, and clay with gravel.

2020 LRDP & 2020 LRDP EIR

The 2020 LRDP guides the location, scale, form and design of new University projects with sensitivity to geology, seismicity and soils considerations. Four of the 2020 LRDP Objectives are particularly relevant:

- **Provide the space, technology and infrastructure we require to excel in education, research, and public service.**
- **Provide the housing, access, and services we require to support a vital intellectual community and promote full engagement in campus life.**
- **Plan every new project to represent the optimal investment of land and capital in the future of the campus.**
- **Plan every new project as a model of resource conservation and environmental stewardship.**

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the new development would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon geology, seismicity and soils. Where applicable, the Project would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice GEO-1-a: UC Berkeley will continue to comply with the California Building Code and the *University Policy on Seismic Safety*.

2020 LRDP Continuing Best Practice GEO-1-b: Site-specific geotechnical studies will be conducted under the supervision of a California Registered Engineering Geologist or licensed geotechnical engineer and UC Berkeley will incorporate recommendations for geotechnical hazard prevention and abatement into project design.

2020 LRDP Continuing Best Practice GEO-1-c: The Seismic Review Committee (SRC) shall continue to review all seismic and structural engineering design for new and renovated existing buildings on campus and ensure that it conforms to the California Building Code and the *University Policy on Seismic Safety*.

2020 LRDP Continuing Best Practice GEO-1-d: UC Berkeley shall continue to use site-specific seismic ground motion specifications developed for analysis and design of campus projects. The information provides much greater detail than conventional codes and is used for performance-based analyses.

2020 LRDP Continuing Best Practice GEO-1-g: As stipulated in the *University Policy on Seismic Safety*, the design parameters for specific site peak acceleration and structural reinforcement will be determined by the geotechnical and structural engineer for each new or rehabilitation project proposed under the 2020 LRDP. The acceptable level of actual damage that could be sustained by specific structures would be calculated based on geotechnical information obtained at the specific building site.

2020 LRDP Continuing Best Practice GEO-1-i: The site-specific geotechnical studies conducted under GEO-1-b will include an assessment of landslide hazard, including seismic vibration and other factors contributing to slope stability.

2020 LRDP Continuing Best Practice GEO-2: Campus construction projects with potential to cause erosion or sediment loss, or discharge of other pollutants, would include the campus Stormwater Pollution Prevention Specification. This specification includes by reference the "Manual of Standards for Erosion and Sediment Control" of the Association of Bay Area Governments and requires that each large and exterior project develop an Erosion Control Plan.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Geology, Seismicity and Soils, although more people than projected in the 2020 LRDP would occupy structures on campus and be exposed to potential geologic, seismic, and soil-related hazards as a result of the existing and projected campus headcount, the potential environmental impacts resulting from the increase in campus headcount are limited to physical development on the UC Berkeley campus and City Environs. The increase in UC Berkeley's existing and projected campus headcount would not require additional development beyond that planned for in the 2020 LRDP that could expose people or structures to adverse effects from geologic, seismic, and soil-related hazards. Although more people on campus could be exposed to hazards in structures that overlay active faults, the 2020 LRDP EIR notes that UC Berkeley is implementing an extensive seismic improvement program to contribute to a cumulative reduction in risks associated with fault rupture and seismic activity, including ground shaking (2020 LRDP EIR Vol 1, p. 4.5-23 to 4.5-24). Future development also would be subject to the *University Policy on Seismic Safety*, which prohibits building on active faults. As noted in the 2020 LRDP EIR, building codes and local construction requirements also have been established to protect against building collapse and major injury during a seismic event (2020 LRDP EIR Vol 1, p. 4.5-23). These factors would minimize the increase in exposure to fault hazards and ground shaking from additional people on campus.

Similarly, potential impacts related to seismic-related ground failure, including liquefaction, landslides, substantial soil erosion, unstable ground, and expansive soil would be reduced by compliance with the California Building Code, the *University Policy on Seismic Safety*, and other regulatory requirements. The increase in UC Berkeley's existing and projected headcount would incrementally increase the exposure of people to geologic, seismic, and soil-related hazards, but seismic retrofits and adherence to continuing best practices and regulatory standards for new development would substantially reduce these hazards. Therefore, increased headcount would not result in significant impacts related to geology, seismicity, and soils, and these impacts would be consistent with the 2020 LRDP EIR's analysis.

GEOLOGY, SEISMICITY AND SOILS

Would the Project:

Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Rupture of a known earthquake fault?	●	

As discussed above, the Project site is located as close as approximately 530 feet from the nearest trace of the active Hayward fault and is within the mapped shear zone of the Louderback fault (Appendix D). A geotechnical investigation performed by Langan concluded that the Louderback fault trace on the Project site is inactive and does not pose a hazard to structures on the surface. Based on this result, new development on the Project site would not be constructed on an active fault as prohibited by the *University Policy on Seismic Safety* and pursuant to the Alquist-Priolo Earthquake Fault Zoning Act. Furthermore, consistent with Continuing Best Practice GEO-1-b, the Upper Hearst Development would incorporate recommendations for geotechnical hazard prevention and abatement into building design. Recommendations in the geotechnical investigation include site preparation methods, guidance on foundation design, excavation, underpinning and below-grade wall design, addition of site retaining walls, construction monitoring, and seismic design parameters for the Upper Hearst Development. In

addition, pursuant to Continuing Best Practice GEO-1-a, the new buildings would be designed for compliance with the *University Policy on Seismic Safety*, which includes provisions to ensure structural safety. UC Berkeley's Seismic Review Committee also has reviewed the proposed buildings for compliance with applicable building design standards and regulations. Therefore, as found by the 2020 LRDP EIR for the 2020 LRDP program as a whole, the Upper Hearst Development would not expose people or structures to substantial hazards from fault rupture (2020 LRDP EIR Vol 1, p. 4.5-17). The Upper Hearst Development's impact related to fault rupture would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, would not expose people or structures to substantial adverse impacts due to fault rupture (2020 LRDP EIR Vol. 1, p. 4.5-23). As discussed above, new development on the Project site would not be constructed on an active fault. Therefore, the Project would not considerably contribute to a cumulative impact related to fault rupture, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Strong seismic ground shaking?		●

UC Berkeley is located in a seismically active region. Ground shaking has the potential to damage buildings. UC Berkeley has implemented a process for the design of new buildings that applies the best available engineering procedure to maximize safety and resiliency, which are incorporated into the 2020 LRDP EIR (Best Practices GEO-1-a through GEO-1-g) and would be applied, where applicable, to the proposed Project. Also, as noted in response to Geology item 1, design and construction of the proposed buildings would be consistent with the *University Policy on Seismic Safety*. Given these practices, the 2020 LRDP EIR determined the impacts to people and property due to seismic ground shaking would be less than significant.

Consistent with the *University Policy on Seismic Safety*, design and construction of the Upper Hearst Development would, at a minimum, comply with the current seismic provisions of CCR, Title 24, California Building Standards Code, or local seismic requirements, whichever requirements are more stringent. Therefore, the new development would be within the scope of the 2020 LRDP EIR's analysis and would have a less than significant impact related to seismic ground shaking.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, would not expose people or structures to substantial adverse impacts due to seismic ground shaking (2020 LRDP EIR Vol. 1, p. 4.5-23). As discussed above, design and construction of the proposed buildings would be consistent with the *University Policy on Seismic Safety* to maximize safety and resiliency. Therefore, the Project would not considerably contribute to a cumulative impact related to seismic ground shaking, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Seismic -related ground failure, including liquefaction?		●

The 2020 LRDP EIR states that "the Adjacent Blocks and the Hill Campus are not located in a liquefaction hazard zone, except at the Memorial Stadium site." (2020 LRDP EIR Vol 1, p. 4.5-10). Memorial Stadium is located approximately 0.4 miles southeast of the site. In addition, Figure 4.5-3 of the 2020 LRDP EIR indicates that the Project site is not located within a liquefaction hazard zone. Because the Project would not introduce additional people to liquefaction hazards, it would result in a less than significant impact from seismic-related ground failure, and would not considerably contribute to a cumulative impact, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Landslides?		●

Landslide risk in the 2020 LRDP area is described as restricted primarily to the hill areas (2020 LRDP EIR, Vol. 1, p. 4.5-19). The Project site is located outside of steep hillside areas to the east of Highland Place and north of Le Conte Avenue, and is surrounded by urban development. As shown on Figure 4.5-3 of the 2020 LRDP EIR, the Project site is not located in an area of landslide risk (2020 LRDP EIR Vol. 1, p. 4.5-12). Therefore, consistent with the 2020 LRDP EIR's analysis, the Project would have a less than significant impact related to landslides and would not considerably contribute to a cumulative impact.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
5. Result in substantial soil erosion or the loss of topsoil?		●

As prescribed in the 2020 LRDP EIR, campus construction projects with potential to cause erosion or sediment loss, or discharge of other pollutants, are undertaken in accordance with the campus Stormwater Pollution Prevention Specification. The specification includes by reference the "Manual of Standards for Erosion and Sediment Control" of the Association of Bay Area Governments and requires development of an erosion control plan (2020 LRDP EIR Best Practice GEO-2). With the inclusion of this practice as part of the Upper Hearst Development, no significant erosion impact is anticipated.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, would not result in substantial soil erosion (2020 LRDP EIR Vol. 1, p. 4.5-24). With adherence to continuing best practices to minimize soil erosion, as noted above, the Project would not considerably contribute to a cumulative impact from soil erosion, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
6. Be located on a geologic unit or soil that is unstable, or would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse?		●

The geotechnical investigation of the Project site found that the risk of landslides, lateral spreading, and liquefaction is low (Appendix D). This report includes recommendations to prevent subsidence that could affect the stability of building foundations. As prescribed in the 2020 LRDP EIR, UC Berkeley would incorporate the recommendations relating to geotechnical hazard prevention and abatement in site-specific geotechnical studies into Project design, prior to construction (Best Practice GEO-1-b). Therefore, the Upper Hearst Development would be designed and built to prevent instability from potential subsidence. This impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, would not result in substantial risks to life or property from unstable geologic units or soil (2020 LRDP EIR Vol. 1, p. 4.5-24). As discussed above, the Project would not result in additional risks from landslides, lateral spreading, or liquefaction, or subsidence with adherence to recommendations in the geotechnical investigation. Therefore, the Project would not considerably contribute to a cumulative impact, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
7. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?		●

Soil surveys indicate that soils in the 2020 LRDP area range from low shrink-swell potential, found primarily in the Hill Campus, to low-to-high shrink-swell potential soils, which exist in the remainder of the 2020 LRDP area. Soil expansiveness potential likely varies across the Campus Park and in the other land use zones given the variety of geologic units underlying the area (2020 LRDP EIR Vol 1. 4.5-13).

The Geotechnical Investigation found that soil on the Project site has moderate to high potential for expansiveness and includes recommendations for building foundations to resist the effects of expansive soil (Appendix D). UC Berkeley would incorporate the recommendations relating to geotechnical hazard prevention and abatement into Project design, prior to construction (Best Practice GEO-1-b). Therefore, the Upper Hearst Development would be within the scope of the 2020 LRDP EIR's analysis and this impact would be less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, would not result in substantial risks to life or property from expansive soils (2020 LRDP EIR Vol. 1, p. 4.5-24). As discussed above, the Project would not result in additional risks from expansive soils with adherence to recommendations in the geotechnical investigation. Therefore, the Project would not considerably contribute to a cumulative impact, consistent with the 2020 LRDP EIR's analysis.

SUMMARY OF GEOLOGY, SEISMICITY AND SOILS ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would not result in new significant impacts in the area of geology, seismicity, or soils (2020 LRDP EIR Vol 1 p. 4.5-17 to 4.5-24). Although the Project site is underlain by a fault trace, a geotechnical investigation concluded that this trace is inactive and does not pose a hazard to structures on-site. Adherence to continuing best practices, recommendations in the geotechnical investigation, and regulatory standards would minimize structural hazards from seismic instability, landslides, unstable geologic units or soil, and expansive soils, and would minimize soil erosion from construction. Therefore, the Upper Hearst Development would not result in significant impacts related to geology, seismicity, and soils, and these impacts would be consistent with the 2020 LRDP EIR's analysis.

7. GREENHOUSE GAS EMISSIONS

SETTING

STATE GHG EMISSIONS INVENTORY

The California Air Resources Board (CARB) tracks greenhouse gas (GHG) emissions in the State in terms of carbon dioxide equivalent emissions (CO_2e). This metric describes the potential of various gases to contribute to global warming. Based on the CARB's California Greenhouse Gas Inventory for 2000-2016, California produced 429.4 million metric tons (MMT) of CO_2e in 2016, achieving its 2020 GHG emission reduction target as emissions fell below 431 MMT of CO_2e (CARB 2018a). The major source of greenhouse gas (GHG) emissions in California is associated with transportation, which contributes 41 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 23 percent of the state's GHG emissions. Electric power accounts for approximately 16 percent of the total emissions.

UC BERKELEY GHG EMISSIONS INVENTORY

UC Berkeley's 1990 baseline emissions level is 160,389 metric tons (MT) of CO_2e (UC Berkeley 2019a). Every year, UC Berkeley completes an annual GHG emissions inventory to track its progress toward GHG emission reductions and reports these efforts publicly. The inventories are completed following reporting protocols developed by The Climate Registry, World Resources Institute, and CARB. UC Berkeley reports on ten emissions sources and in three different categories:

- Scope 1 - Direct Emissions: natural gas, campus fleet, emissions from refrigerants
- Scope 2 - Indirect Emissions: purchased electricity, purchased steam
- Scope 3 - Other Emissions: business air travel, student commute, faculty/staff commute, solid waste, water consumption

Table 7 shows the results of the annual GHG inventory from academic year 2009-2010 through academic year 2016-2017. In 2016, the total annual GHG emissions from Scopes 1, 2 and 3 sources were 151,650 metric tons CO_2e; UC Berkeley's 2016 emissions were approximately 5 percent lower than they were in 1990.

Table 7:
UC Berkeley Annual GHG Emission Inventories

Academic Year	Scope 1 Emissions (MT of CO_2e)	Scope 2 Emissions (MT of CO_2e)	Scope 3 Emissions (MT of CO_2e)	Total GHG Emissions (MT of CO_2e)	Service Population[1]	Per SP Emissions (MT of CO_2e)
2009 – 2010	13,759	122,660	40,524	176,943	48,414	3.65
2010 – 2011	12,784	122,833	42,152	177,769	47,992	3.70
2011 – 2012	13,738	111,998	33,573	159,309	48,257	3.30
2012 – 2013	12,776	104,598	33,617	150,991	48,667	3.10
2013 – 2014	13,963	103,823	34,999	152,785	49,277	3.10
2014 – 2015	12,141	98,305	36,422	146,868	51,163	2.87
2015 – 2016	12,099	97,819	44,087	154,005	52,117	2.95
2016 – 2017	12,124	97,277	44,081	151,650	54,319	2.79

Note: Data was not available for academic year 2017-2018.

[1]*Service population = students + faculty/staff*

Source: UC Berkeley 2016, 2019a, and 2019b; UCOP 2019

UC Berkeley has also completed projections of GHG emissions through academic year 2022-2023. As shown in Table 8, total annual GHG emissions during the 2018 to 2023 period are projected to increase by approximately 41,000 MT of CO_2e per year above total annual GHG emissions reported in 2016 (Stoll 2019; UC Berkeley 2019a). This substantial increase in emissions is due in large part to a major change in UC Berkeley's energy operations and electricity sourcing, which occurred in 2017. Prior to 2017, UC Berkeley received heat for the main campus in the form of high-pressure steam from the on-campus cogeneration plant, which was owned and operated by a third party, and purchased electricity from PG&E to power its main campus, which constitutes 97 percent of UC Berkeley's electricity consumption. Between the opening of the plant in the 1980s and mid-2017, the third-party owner and operator had a power purchase agreement with PG&E to sell electricity generated by the cogeneration plant to PG&E. The GHG emissions associated with the plant during those years were the responsibility of the third-party owner operator. In 2017, the third-party operator's power purchase agreement with PG&E ended as did UC Berkeley's energy services contract with the third-party operator. Following the end of both contracts, UC Berkeley assumed ownership of the cogeneration plant and began to use the majority of its main campus electricity from the cogeneration plant.

As a result of the shift in electricity source from PG&E to the cogeneration plant, the GHG emissions from electricity consumed by UC Berkeley nearly doubled because electricity produced by the cogeneration plant is produced exclusively from natural gas combustion whereas electricity produced by PG&E is partially produced by a mix of carbon-free sources including renewables, nuclear, and hydropower (UC Berkeley 2016). This change in ownership did not result in more GHG emissions overall as the plant existed on campus in 1990. The change in ownership shifted the reporting entity for GHG emissions associated with the plan from the third party to UC Berkeley. As such a recalculation of UC Berkeley's baseline 1990 emission levels would be appropriate according to public sector protocols outlined by the World Resources Institute (WRI 2010).

Table 8:
Projected UC Berkeley GHG Emissions

Academic Year	Scope 1 Emissions (MT of CO_2e)	Scope 2 Emissions (MT of CO_2e)	Scope 3 Emissions (MT of CO_2e)	Total GHG Emissions (MT of CO_2e)	Service Population[1]	Per SP Emissions (MT of CO_2e)
2018 – 2019	144,961	4,556	42,894	192,410	58,763	3.27
2019 – 2020	144,975	4,275	43,187	192,437	59,776	3.22
2020 – 2021	144,989	4,274	43,495	192,757	60,559	3.18
2021 – 2022	145,003	4,272	43,805	193,080	61,357	3.15
2022 – 2023	145,017	4,270	44,117	193,404	62,090	3.11

[1]*Service population = students + faculty/staff*

Source: Stoll 2019

As indicated by Tables 7 and 8, the shift in sourcing of electricity between 2016 and 2018 has substantially increased UC Berkeley's reported direct Scope 1 emissions from the campus (e.g., the cogeneration plant, which is now owned and operated by UC Berkeley instead of a third-party operator), while decreasing Scope 2 emissions (e.g., purchased electricity and steam). Figure 25 shows UC Berkeley's historic and projected annual GHG emissions by scope.

Annual emissions in 2016 were approximately 151,650 MT of CO_2e per year, or 2.8 MT of CO_2e per service population per year (UC Berkeley 2019a).[2] However, as discussed above, the shift in the main campus electricity source from PG&E to the on-campus cogeneration plant in 2017 is projected to increase UC Berkeley's reported total annual emissions by approximately 41,000 MT of CO_2e per year from 2016 to 2018. As a result, total reported annual GHG emissions are anticipated to increase to approximately 192,000 MT of CO_2e per year, or 3.3 MT of CO_2e per service population per year, for academic year 2018-2019. As campus headcount continues to increase, however, per service population GHG emissions from academic years 2018-2019 through 2022-2023 are projected to decline from approximately 3.27 MT of CO_2e per service population per year to 3.11 MT of CO_2e per service population per year.

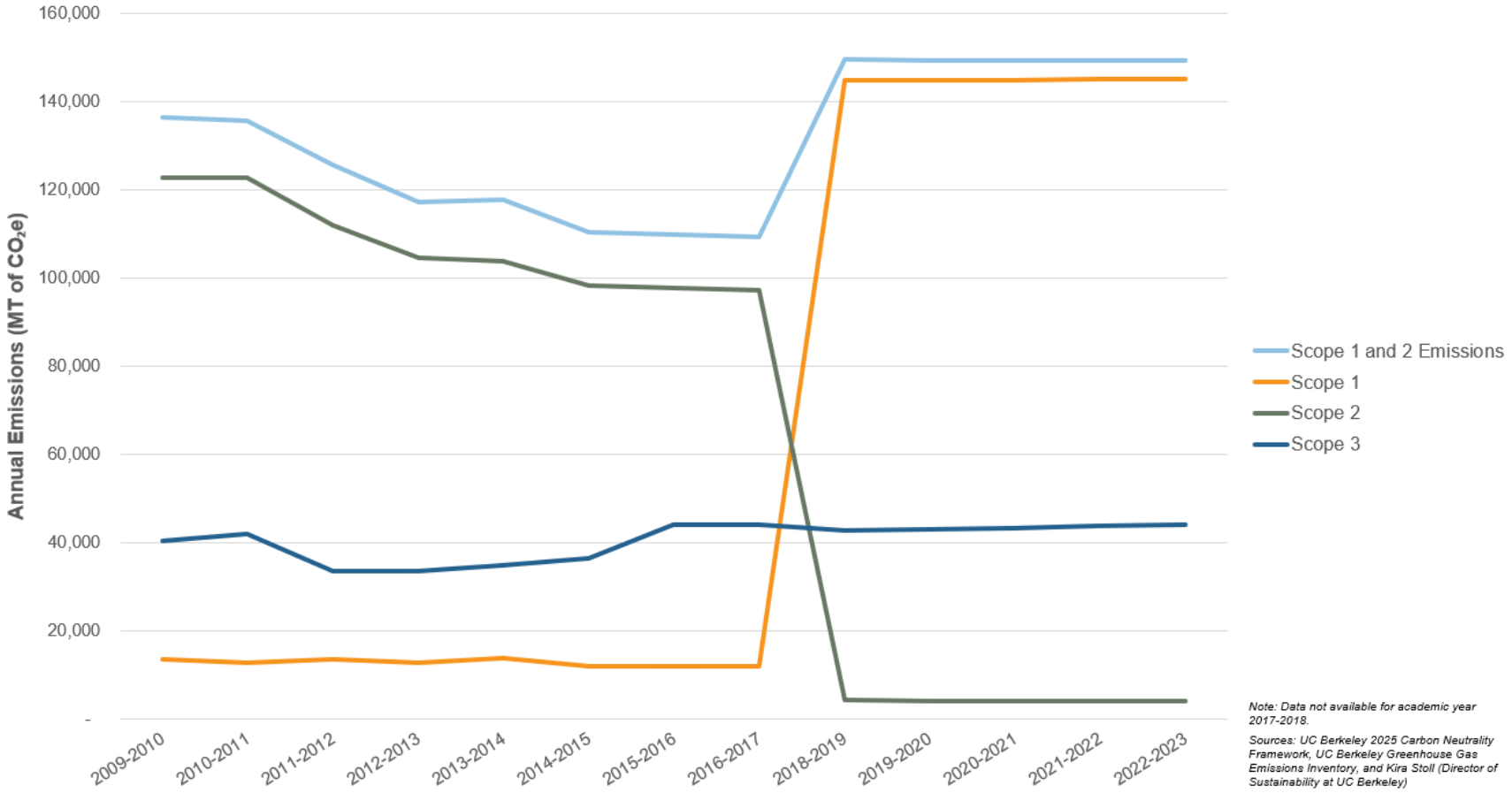
UC BERKELEY SUSTAINABILITY INTIATIVES

Since approval of the 2020 LRDP EIR, UC Berkeley has been at the forefront of leadership of climate change efforts, including establishing policies and goals to achieve carbon neutrality and 100 percent clean energy goals. UC Berkeley has produced three climate action planning documents, with the most recent published in 2016 providing a high-level course of action and strategies to meet the UC system's 2025 carbon neutrality target. UC Berkeley's major climate mitigation accomplishments include:

- Since 2008, UC Berkeley has implemented energy efficiency measures that have reduced carbon emission by 15,000 tons.
- UC Berkeley total GHG emissions in 2016 were approximately 5 percent below the 1990 GHG emission level.
- Energy intensity per square foot has been reduced by 15 percent since 1990, while building space has grown.
- 35 percent of the Berkeley vehicle fleet is either hybrid or powered by alternative fuels.

[2] Service population = 40,173 students + 14,146 faculty/staff (UC Berkeley 2019b and UCOP 2016)

FIGURE 25 UC BERKELEY'S ANNUAL GHG EMISSIONS BY SCOPE



Note: Data not available for academic year 2017-2018.

Sources: UC Berkeley 2025 Carbon Neutrality Framework, UC Berkeley Greenhouse Gas Emissions Inventory, and Kira Stoll (Director of Sustainability at UC Berkeley)

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- Fuel use from the campus fleet and student, faculty, and staff commutes remains more than 25 percent below 1990 levels. Greater than 5,500 people commute by bicycle to campus on a typical school day. The campus transportation survey found that over 12 percent of all campus commuters ride a bike to campus – nearly 21 percent of faculty, 9 percent of staff, 27 percent of graduate students, and 7 percent of undergraduates commute by bicycle.

REGULATORY SETTING

The following regulations address climate change and GHG emissions.

STATE

CARB is responsible for the coordination and oversight of state and local air pollution control programs in California. California has numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, USEPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and would provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020, and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHGs to meet the 2020 deadline. AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO2e. The Scoping Plan was approved by CARB on December 11, 2008, and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and cap-and-trade) have been adopted since approval of the Scoping Plan. In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defines CARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 statewide goals. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use (CARB 2014).

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles for 2020 and 2035. SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, CARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Association of Bay Area Governments and Metropolitan Transportation Commission were assigned targets of a seven percent reduction in GHGs from transportation sources by 2020 and a 15 percent reduction by 2035. They adopted a RTP/SCS, called Plan Bay Area that would meet the assigned targets when implemented, by achieving a 10 percent per capita GHG emissions reduction in 2020 and a 16 percent reduction in 2035. Plan Bay Area 2040 was adopted on July 26, 2017 and is a limited and focused update of Plan Bay Area report adopted in 2013. Plan Bay Area 2040 builds upon the growth pattern and strategies developed in the original Plan Bay Area but with updated planning assumptions that incorporate key economic, demographic and financial trends (ABAG and MTC 2017a).

Executive Order S-3-05

Executive Order (EO) S-3-05 establishes statewide GHG emissions reduction targets. EO S-3-05 provides that, by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and, by 2050, emissions shall be reduced to 80 percent below 1990 levels. The first and 2010 and 2020 goals were by AB 32 legislation, which gave the CARB the authority to implement plans to achieve these goals. No legislation has been adopted for the 2050 goal.

Senate Bill 32

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending AB 32 by requiring the state to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted "California's 2017 Climate Change Scoping Plan" (the "2017 Scoping Plan"), which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) CO2e by 2030 and two MT CO2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-

level analyses (regional, sub-regional, county, city levels), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017).

Senate Bill 1383

Adopted in September 2016, SB 1383 requires the CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

The bill also requires the California Department of Resources Recycling and Recovery, in consultation with CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18

Executive Order (EO) B-55-18 establishes a new statewide policy of achieving net zero carbon emissions by 2045 and to achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100. This EO supersedes the 2050 reduction target established by EO S-3-05. However, no legislation has been adopted for reduction goal of B-55-18.

REGIONAL

The Bay Area Air Quality Management District (BAAQMD) is responsible for enforcing standards and regulating stationary sources in its jurisdiction. BAAQMD regulates GHG emissions through specific rules, regulations, and project and plan level emissions thresholds for GHGs to ensure that the Bay Area contributes to its fair share of emissions reductions. In 2013, BAAQMD adopted a resolution that builds on state and regional climate protection efforts by:

- Setting a goal for the Bay Area region to reduce GHG emissions by 2050 to 80 percent below 1990 levels
- Developing a Regional Climate Protection Strategy to make progress towards the 2050 goal, using BAAQMD's Clean Air Plan to initiate the process
- Developing a 10-point work program to guide the BAAQMD's climate protection activities in the near-term

The BAAQMD is developing the Regional Climate Protection Strategy, but has outlined the 10-point work program, which includes policy approaches, assistance to local governments, and technical programs that will help the region make progress toward the 2050 GHG emissions goal.

The BAAQMD's *CEQA Air Quality Guidelines* recommends a 2020 efficiency threshold of 6.6 MT of CO_2e per service population per year for determining the significance of plan-level impacts related to GHG emissions (BAAQMD 2017). As discussed in Addendum #5 to the 2020 LRDP EIR, the BAAQMD's thresholds for GHG emissions are not clearly applicable to a campus environment and therefore not applied as significance thresholds in the EIR.

UNIVERSITY OF CALIFORNIA

The University of California has adopted the following three GHG reduction goals, which are discussed in further detail below and included in the University of California Office of the President (UCOP) Sustainable Practices Policy under the Climate Protection section (UCOP 2016):

1. Reduce Scope 1, 2, and 3 emissions to 1990 levels by 2020 in compliance with AB 32.
2. Achieve net-zero emissions from Scope 1 and 2 emissions by 2025.
3. Achieve net-zero emissions from specific Scope 3 emissions by 2050.

University of California Carbon Neutrality Initiative

In November 2013, UC President Janet Napolitano introduced the Carbon Neutrality Initiative, which commits UC campuses (buildings and vehicle fleets) to emitting net zero GHG emissions by 2025. In line with this initiative, UC Berkeley and other UC campuses also planned to achieve net zero GHG emissions from commuting and business air travel by 2050. These goals require the UC system, including UC Berkeley, to aggressively improve energy efficiency in buildings, reduce emissions from the campus fleet and other sources, and increase utilization of renewable energy sources (University of California Office of the President [UCOP] 2016; UC Berkeley 2016). The UC defines carbon neutrality as where: … the University will have net zero climate impacts from [GHG] emissions attributed to Scope 1 direct emission sources and Scope 2 indirect emission sources as defined by The Climate Registry, and specific Scope 3 emissions as defined by the American College and University Presidents' Climate Commitment (ACUPCC). This neutrality will be achieved by minimizing GHG emissions from these sources as much as possible and using carbon offsets or other measures to mitigate the remaining GHG emissions (UCOP 2016). The UC has incorporated the Carbon Neutrality Initiative into the UC Sustainable Practices Policy and specifies the reduction targets in the Climate Protection section.

University of California Sustainable Practices Policy

At the direction of The Regents of the University of California, UCOP developed a Sustainable Practices Policy which establishes sustainability goals to be achieved by all campuses and medical centers within the UC system as well as the Lawrence Berkeley National Laboratory. This policy was adopted by the UC system and is regularly updated, with the most recent update occurring in January 2018. It requires UC campuses to achieve carbon neutrality of Scope 1 and 2 emissions by 2025 and carbon neutrality of Scope 3 emissions by 2050. The policy goals encompass nine areas of sustainable practices: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable food service, sustainable water systems. Examples of policies include the following:

Green Building Design.

- All new building projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the California Building Code (Title 24 portion of the California

Code of Regulations) energy efficiency standards by at least 20 percent or achieve the whole-building energy performance targets shown in Table 1 of Section V.A.3 of the policy.

- All new buildings will achieve a minimum of U.S. Green Building Council's LEED "Silver" certification and strive to achieve certification of LEED "Gold," whenever possible within the constraints of program needs and standard budget parameters.

Sustainable Transportation.

- Develop a Fleet Sustainability Implementation plan by January 1, 2018 to document the infrastructure and financial needs to implement a low-carbon fleet program and lower campus fleet carbon emissions through 2025.
- To amplify the impact of campus programs, each location is encouraged to partner with local agencies on opportunities to improve sustainable transportation access to and around university facilities in addition to developing its own transportation programs.
- This policy shall be consulted for all new campus development – including acquisitions and leases – to evaluate how the development or acquisition would meet the transportation policies and goals of the campus and University.

Sustainable Building Operations for Campuses.

- The University will incorporate the Sustainable Building Operations policy requirements into existing facilities-related training programs, with the aim of promoting and maintaining the goals of the Policy.

Recycling and Waste Management.

- The University will reduce per capita total municipal solid waste generation at all locations other than medical centers as follows:
  - Reduce waste generation per capita to FY2015/16 levels by 2020,
  - Reduce waste generation by 25 percent per capita from FY2015/16 levels by 2025, and
  - Reduce waste generation by 50 percent per capita from FY2015/16 levels by 2030.
- The University will achieve zero waste by 2020 at all locations other than medical centers. Minimum compliance for zero waste is 90 percent diversion of municipal solid waste from landfills.
- By 2020, the University will prohibit the sale, procurement or distribution of Expanded Polystyrene (EPS) other than that utilized for laboratory supply or medical packaging and products.
- By 2018, no EPS shall be used in foodservice facilities for takeaway containers.

As a member of the UC, the carbon neutrality goals under the Climate Protection section shown above apply to UC Berkeley. By 2025, UC Berkeley must achieve campus-wide zero net emissions from Scope 1 and 2 emissions to comply with the UC's climate change commitments.

UC BERKELEY

UC Berkeley Carbon Neutrality Framework

In 2016, UC Berkeley published the 2025 Carbon Neutrality Framework, which discusses strategies for achieving the University of California'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. The 2025 Carbon Neutrality Framework acknowledges the

challenge of achieving carbon neutrality given the change in electricity supply source from PG&E, which partially sources electricity from carbon-free sources, to the on-campus cogeneration plant, which relies solely on natural gas combustion. As discussed in the framework, 90 percent of the campus' Scope 1 and 2 emissions are associated with the on-campus cogeneration plant; therefore, reducing GHG emissions from the cogeneration plant and building energy usage is the main focus for achieving carbon neutrality.

UC Berkeley Climate Action Plan

UC Berkeley drafted a Climate Action Plan in 2009 to plan for reducing GHG emissions and eventually achieve climate neutrality. Because the Climate Action Plan has not been formally adopted, it does not serve as a qualified GHG reduction strategy pursuant to CEQA Guidelines Section 15183.5, and this SEIR does not rely on an analysis of the Project's consistency with the Climate Action Plan to determine the Project's impact on climate change.

2020 LRDP & 2020 LRDP EIR

The Project would support 2020 LRDP policies (as amended July 2009) to:

- **Design new buildings to a minimum standard equivalent to LEED silver or systemwide sustainability policy standards, whichever is more stringent.**
- **Design new buildings to outperform the required provisions of Title 24 of the California Energy Code by at least 20 percent or systemwide sustainability policy standards, whichever is more stringent.**
- **Design new projects to minimize energy and water consumption and wastewater production.**
- **Design all aspects of new projects to achieve campus short-term and long-term climate change emission targets established in the campus Climate Action Plan.**

Addendum to the 2020 LRDP EIR

An Addendum to the 2020 LRDP EIR, completed in 2009, describes existing climate change conditions and evaluates the potential for development under the UC Berkeley 2020 LRDP, including construction, to affect climate change. As described in the Addendum, per capita emissions associated with implementation of the 2020 LRDP would be below plan-level significance thresholds available at the time the Addendum was published (2020 LRDP EIR Addendum #5, page 32). Per capita emissions were also estimated to be below the June 2010 plan-level thresholds published by BAAQMD, revised March 2017 (BAAQMD 2017). The Addendum determined that implementation of the 2020 LRDP would not cause significant effects to global climate change with incorporation of all best practices and implementation of UC Berkeley's Climate Action Plan (2020 LRDP EIR Addendum #5, page 55). In addition, the Addendum found that implementation of the 2020 LRDP would not impede or conflict with the emissions reductions targets and strategies prescribed in or developed to implement AB 32, given the provisions of the 2020 LRDP and campus best practices (2020 LRDP EIR Addendum #5, page 45).

The Addendum also calculated emissions from 2020 LRDP-related construction. The 2020 LRDP EIR assumed that up to one million gross square feet of space could be under construction at any time during the course of 2020 LRDP implementation. Although the project's construction emissions are evaluated and considered in this section, construction emissions are not reported in the annual campus inventory, due to the fact that the campus does not directly control construction companies; emissions calculations for construction vehicles would be reported and regulated by construction businesses at their business address.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

The following Continuing Best Practices from the 2020 LRDP EIR are directly aimed at reducing campus-wide GHG emissions.

2020 LRDP Continuing Best Practice CLI-1: UC Berkeley would continue to implement provisions of the UC Policy on Sustainable Practices including, but not limited to: Green Building Design; Clean Energy Standards; Climate Protection Practices; Sustainable Transportation Practices; Sustainable Operations; Recycling and Waste Management; and Environmentally Preferable Purchasing Practices.

2020 LRDP Continuing Best Practice CLI-2: UC Berkeley would continue to implement energy conservation measures (such as energy-efficient lighting and microprocessor-controlled HVAC equipment) to reduce the demand for electricity and natural gas. The energy conservation measures may be subject to modification as new technologies are developed or if current technologies become obsolete through replacement.

2020 LRDP Continuing Best Practice CLI-3: UC Berkeley would continue to annually monitor and report upon its progress toward its greenhouse gas emission targets. UC Berkeley would continue to report actions undertaken in the past year, and update its climate action plan annually to specify actions that UC Berkeley is planning to undertake in the current year and future years to achieve emission targets.

In addition to these, as detailed in Addendum #5 to the 2020 LRDP EIR, several continuing best practices and mitigation measures from other resource areas of the 2020 LRDP EIR would also support GHG emission reductions, including Continuing Best Practices AES-1-d, AIR-1, AIR-4-b, AIR-5, BIO-1-a, BIO-1-c, HYD-2-a, HYD-2-c, HYD-3, PUB-2.1-b, PUB-2.1-d, TRA-1-a, TRA-1-b Part 1, TRA-2, TRA-3-a, TRA-3-b, TRA-5, USS-2.1-a, USS-2.1-c, USS-2.1-d, USS-5.1, and USS-5.2 as well as Mitigation Measures AIR-4-b, AIR-5, TRA-11, and TRA-12.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Greenhouse Gas Emissions, the potential environmental impacts resulting from the increase in campus headcount are included in the campus's existing and projected emissions and analyzed below.

GREENHOUSE GAS EMISSIONS

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	●	

Although the 2020 LRDP EIR Addendum #5 determined that implementation of the 2020 LRDP would have a less than significant impact on global climate change, UC Berkeley's GHG emissions trajectory and the regulatory setting for emissions reduction targets have since changed. Considering these changes in circumstances, the following analysis evaluates the impacts of GHG emissions associated with the Project which accounts for an updated population baseline as discussed in Section 2, *Introduction*, of this SEIR.

In 2015 the California Supreme Court submitted an opinion on the Biological Diversity et al. vs. California Department of Fish and Wildlife case, finding that meeting California's statewide reduction goals does not preclude all new development. Rather, the AB 32 Scoping Plan assumes continued growth and depends on increased efficiency and conservation in land use and transportation from all Californians. To the extent that a project incorporates efficiency and conservation measures sufficient to contribute its portion of the overall GHG reductions necessary, one can reasonably argue that the project's impact is not cumulatively considerable, because it is helping to solve the cumulative problem of GHG emissions as envisioned by California law. This finding is consistent with Section 15064.4 of the CEQA Guidelines which details that lead agencies have the discretion to assessing the significance of impacts from GHG emissions on the environment through a qualitative evaluation of the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

This analysis evaluates the project's consistency with policies adopted to reduce GHG emissions such as AB 32, SB 32, and the UC Carbon Neutrality Initiative to determine whether GHG emissions associated with the Project would result in a significant impact. These regulations and policies are used to qualitatively evaluate the significance because the State and the University of California have determined that achieving these GHG reduction targets is necessary to avoid the adverse effects of climate change. Therefore, if the Project is consistent with these policies, then the Project would not generate significant, cumulatively considerable GHG emissions that would contribute to the cumulative impact of climate change.

Construction and operation of the proposed Upper Hearst Development would generate GHG emissions. The new academic and residential buildings would be within the development parameters of the 2020 LRDP EIR; therefore, their GHG emissions would not be additional to those anticipated in the 2020 LRDP EIR Addendum #5 for the overall 2020 LRDP program, which was calculated to be approximately 237,269 MTCO2 per year in 2020 without the implementation of UC Berkeley's GHG reduction policies and programs. The 2020 LRDP EIR Addendum #5 details the assumptions behind this calculation of GHG emissions under the 2020 LRDP program. Moreover, the proposed Upper Hearst Development would be planned, designed, and managed to comply with the University Policy on Sustainable Practices and would incorporate best practices and specific design elements to reduce GHG emissions, as outlined in Section 3.5.

Consistent with the 2020 LRDP and 2020 LRDP EIR, the new buildings would be designed to achieve a minimum LEED Silver rating and would target a Gold rating for new construction. According to the LEED checklists prepared for the Upper Hearst Development, potable water used in outdoor landscaping would be reduced by 50 to 100 percent from baseline building performance, while indoor water use would be reduced by a minimum of 20 percent from baseline building performance. Landscaping would minimize water demand by the use of native, drought-tolerant plants. Reduced water demand would result in fewer emissions from electricity used to supply water. The Upper Hearst Development also would be subject to the UC Policy on Sustainable Practices green building requirement to outperform California Title 24 energy efficiency standards by a minimum of 20 percent or achieve whole-building energy performance targets shown in Table 1 of Section V.A.3 of the policy, which would incrementally reduce emissions from generating and transporting energy. Exterior lighting would be on photocell control, switching on and off depending on the amount of daylight present. Interior lighting would have occupancy sensors to turn off lights when people are not present and would meet LEED quality criteria.

Exterior windows would enable the use of daylight as an integral part of lighting systems, with shading provided to control illumination levels. In addition, all roofing materials would have a high solar reflective index to reduce the heat island effect.

The proposed facilities and site layout also would minimize GHG emissions from transportation: the proposed residences for campus affiliates would be located adjacent to the GSPP complex and Campus Park. The proximity between residences and academic space would reduce the need for people to commute by motor vehicle to the Project site, relative to existing conditions. In addition, the Upper Hearst Development would reduce the number of parking spaces on-site and, therefore, would not induce demand for additional driving. In the new or renovated parking structure, an estimated 10 parking spaces for electric vehicles and an estimated 52 bicycle parking spaces would be provided.

A modest increase in water consumption and waste generation on campus through the 2022-23 academic year (including the updated campus population baseline and projections) would occur as the result of greater use of sinks, toilets, water fountains, toilets, and trash receptacles. Increased water usage would result in increased GHG emissions from electricity used to transport water, and increased solid waste generation would result in increased GHG emissions from methane offgassing that occurs during decomposition of solid waste at landfills. However, as discussed in Chapter 16, *Utilities and Service Systems*, implementation of water efficiency measures and recycling measures would offset some of the increase in water usage and solid waste generation. In addition, substantial new energy and water demand or solid waste generation that would significantly increase GHG emissions would not occur because no additional physical development beyond that contemplated in 2020 LRDP would be constructed. As discussed in Chapter 14, *Transportation and Traffic*, the Project would not increase motor vehicle trips that would generate GHG emissions, relative to that anticipated in the 2020 LRDP EIR Addendum #5, and in fact, motor vehicle trips are projected to decrease over the period from academic year 2001-2002 to academic year 2022-2023.

CONSISTENCY WITH AB 32

AB 32 requires that California reduce its statewide GHG emissions to 1990 levels by 2020. To contribute to statewide attainment of this target, the UC Sustainable Practices Policy requires that each campus reduce GHG emissions to 1990 levels by 2020. The 2016 GHG inventory total is approximately 5 percent below UC Berkeley's 1990 GHG emissions level. However, as discussed in the Setting, due to the shift in the main campus' electricity source from PG&E to the on-site cogeneration plant in 2017, UC Berkeley's annual GHG emissions from implementation of the 2020 LRDP are projected to exceed 1990 levels from academic year 2018-2019 through academic year 2022-2023. Nonetheless, in accordance with the World Resources Institute's U.S. Public Sector Protocol, the 1990 baseline emissions may need to be recalculated because of the substantial structural change related to the reassignment of control of the on-site cogeneration plant to UC Berkeley. Nonetheless, continued implementation of the 2020 LRDP would not be consistent with the UC's goal of reducing emissions to 1990 levels by 2020 in compliance with AB 32, without further measures to reduce emissions. Because construction and operation of the Upper Hearst Development would be part of implementation of the 2020 LRDP, new GHG emissions from construction and operation of the Project would contribute to the projected campus-wide exceedance of the UC's adopted target of reducing GHG emissions to 1990 levels by 2020 to comply with AB 32.

CONSISTENCY WITH UC POLICY

The UC Carbon Neutrality Initiative and Sustainable Practices Policy require that UC Berkeley reaches "climate neutrality" in Scope 1 and 2 emissions by 2025. This means achieving net zero emissions campus-wide from Scope 1 and 2 sources. As shown in Table 8, UC Berkeley's Scope 1 and 2 emissions in the 2018-2019 academic year are projected to total approximately 149,517 MT of CO_2e (144,961 MT + 4,556 MT). Because construction and operation of the Upper Hearst Development would generate direct emissions from the use of natural gas, electricity, and steam, it would increase existing campus-wide emissions. Therefore, in order for the 2020 LRDP and the Upper Hearst Development to be consistent with UC policy to achieve carbon neutrality in Scope 1 and 2 emissions by 2025, implementation of Mitigation Measure GHG-1 would be required to offset the UC Berkeley's increased GHG emissions.

CONSISTENCY WITH SB 32

It is anticipated that the Upper Hearst Development would be fully operational in 2022-2023. The Association of Environmental Professionals White Paper, Beyond 2020 and Newhall, presents substantial evidence that. GHG significance thresholds should be based on the State-adopted target for the next milestone (i.e., 2020, 2030, or 2050) for which the State has completed adequate GHG reduction planning. Specifically, identified targets should be for a milestone that follows a project's operational year. SB 32 sets a statewide GHG reduction target of 40 percent below 1990 levels by the year 2030. and would therefore be subject to the 2030 GHG reduction target established by SB 32. To contribute to the State's attainment of this target, UC Berkeley would have to reduce total annual GHG emissions 40 percent below 1990 levels by the year 2030, to approximately 96,233 MT of CO_2e.

Beginning in 2018, total GHG emissions from UC Berkeley are projected to increase slightly from 192,410 MT of CO_2e per year in academic year 2018-2019 to 193,404 MT of CO_2e per year in academic year 2022-2023. As a result, UC Berkeley's GHG emissions trajectory is not on track toward attaining the 2030 GHG reduction target established by SB 32 and would be inconsistent with this target. Because GHG emissions from construction and operation of the Upper Hearst Development would contribute to this potential exceedance of applicable GHG reduction targets, the Project would also be inconsistent with SB 32 without mitigation.

As discussed above, implementation of Mitigation Measure GHG-1 would be required to achieve campus-wide net zero Scope 1 and Scope 2 emissions by 2025, consistent with the adopted UC Carbon Neutrality Initiative and Sustainable Practices Policy. This carbon neutrality policy is a more stringent target than SB 32 because it requires net zero Scope 1 and 2 emissions, which comprise approximately 78 percent of UC Berkeley's annual GHG emissions.[3] By achieving carbon neutrality of Scope 1 and 2 emissions, UC Berkeley would reduce total annual GHG emissions to approximately 44,725 MT of CO_2e by 2025, which would be well below the 40 percent GHG emission reductions necessary to achieve the SB 32 target for 2030.[4] As a result, consistency with the UC Carbon Neutrality Initiative and Sustainable Practices Policy would also result in consistency with the GHG reduction target established by SB 32.

[3] As shown in Table 8, for academic year 2018-2019, UC Berkeley's Scope 1 and 2 emissions are projected to total approximately 149,517 MT of CO_2e per year (144,961 MT + 4,556 MT). Therefore, Scope 1 and 2 emissions comprise approximately 77.7 percent of total annual GHG emissions (149,517 MT / 192,410 MT * 100%)

[4] Scope 3 emissions in academic year 2024-2025 were estimated using a linear trendline of projected Scope 3 emissions from academic year 2018-2019 through academic year 2022-2023.

CONSISTENCY WITH 2017 CLIMATE CHANGE SCOPING PLAN

California's 2017 Climate Change Scoping Plan also includes goals to reduce climate impacts. Table 9 evaluates the Upper Hearst Development's consistency with applicable goals. As shown by Table 9, the Upper Hearst Development would be consistent with applicable goals in California's 2017 Climate Change Scoping Plan to reduce climate impacts.

Table 9:
Consistency with 2017 Climate Change Scoping Plan

Goals	Implemented by Project?
Transportation	
Increase the number, safety, connectivity, and attractiveness of biking and walking facilities to increase use.	*Yes. The Upper Hearst Development would facilitate active transportation by adding an estimated 52 bicycle parking spaces on-site.*
Promote transportation fuel system infrastructure for electric, fuel-cell, and other emerging clean technologies that is accessible to the public where possible, and especially in underserved communities, including environmental justice communities.	*Yes. The new or renovated Upper Hearst parking structure would include an estimated 10 parking spaces for electric vehicles.*
Quadruple the proportion of trips taken by foot by 2030 (from a baseline of the 2010–2012 California Household Travel Survey).	*Yes. The proposed residential building would provide housing adjacent to the GSPP complex and the Campus Park, incentivizing pedestrian trips for academic purposes.*
Water	
Make conservation a California way of life by using and reusing water more efficiently through greater water conservation, drought tolerant landscaping, stormwater capture, water recycling, and reuse to help meet future water demands and adapt to climate change.	*Yes. Landscaping would minimize water demand by the use of native, drought-tolerant plants. Irrigation of landscaping would include the use of drip systems. Watering of landscaping would be reduced 50 to 100 percent from baseline building performance. Indoor water use also would be reduced by 20 percent to attain LEED certification. Stormwater runoff would be better controlled due to the conversion of the northern portion of the site from an existing surface parking lot. Stormwater runoff from the buildings and paved areas would be discharged into and filtered through stepped stormwater planters prior to discharge to the City storm drain system*
Energy	
Reduce fossil fuel use.	*Yes. The Upper Hearst Development would reduce the number of parking spaces on-site, incentivizing active transportation and transit use rather than the use of motor vehicles. Vehicle trips would still decrease relative to the 2001-2002 school year. The Project site also is accessible from a number of transit lines that run along Hearst Avenue, which borders the site.*
Reduce energy demand.	*Yes. The Upper Hearst Development would employ energy efficiency strategies in all building disciplines in order to achieve a 20 percent energy use reduction below Title 24 requirements. Exterior lighting would be on photocell control, switching on and off depending on the amount of daylight present. Interior lighting would have occupancy sensors to turn off lights when people are not present and would meet LEED quality criteria. Exterior windows would enable the use of daylight as an integral part of lighting systems, with shading provided to control illumination levels. In addition, all roofing materials would have a high solar reflective index to reduce the heat island effect.*

Table 9:
Consistency with 2017 Climate Change Scoping Plan

Goals	Implemented by Project?
Waste	
Maximize recycling and diversion from landfills.	*Yes. The campus has an existing policy to increase diversion of construction and demolition waste. All trash rooms in the Upper Hearst Development would accommodate recycling and composting containers.*

CONSISTENCY WITH EXECUTIVE ORDER B-55-18 (CARBON NEUTRALITY)

With implementation of Mitigation Measure GHG-1, UC Berkeley would achieve carbon neutrality in Scope 1 and 2 emissions by 2025. Therefore, with mitigation incorporated, UC Berkeley would contribute its fair share toward the statewide 2045 carbon neutrality goal established by EO B-55-18 and would not conflict with this goal.

MM-GHG-1 By May 1, 2021, if necessary, UC Berkeley shall purchase sufficient carbon offsets and/or renewable energy certificates within the State of California to reduce annual campus-wide greenhouse gas emissions to 1990 baseline levels. With such reductions in GHG emissions, UC Berkeley shall meet the GHG reduction target in the UC Sustainable Practices Policy for the year 2020, which would ensure consistency with the statewide target established by AB 32. If necessary, by May 1, 2026, UC Berkeley shall purchase carbon offsets and/or renewable energy certificates to achieve campus-wide carbon neutrality in Scope 1 and 2 emissions by 2025, consistent with the UC Sustainable Practices Policy.

Implementation of Mitigation Measure GHG-1 would ensure that UC Berkeley's net GHG emissions, after purchase of carbon offsets and/or renewable energy certificates, would be consistent with the UC's 2025 carbon neutrality target. As discussed above, by achieving carbon neutrality in Scope 1 and 2 emissions by 2025, UC Berkeley would also meet the State's SB 32 emissions reduction target for 2030 and would contribute its fair share toward the statewide 2045 carbon neutrality goal. Therefore, the impact on global climate change would be less than significant after mitigation.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	●	

See previous item.

SUMMARY OF GREENHOUSE GAS EMISSIONS ANALYSIS

The Upper Hearst Development would be within the development parameters of the 2020 LRDP and would not generate additional GHG emissions above those anticipated in the 2020 LRDP EIR Addendum #5. Furthermore, the Upper Hearst Development would be planned, designed, and managed to comply with the UC Sustainable Practices Policy and would incorporate best practices and specific design

elements to reduce GHG emissions. Total annual GHG emissions from UC Berkeley are projected to increase in academic year 2018-2019 and continue increasing slightly through academic year 2022-2023 resulting from the change in ownership of the campus cogeneration plant. Therefore, UC Berkeley would implement Mitigation Measure GHG-1. Under this mitigation measure, if UC Berkeley is unable to bring emissions to 1990 levels in 2020 (consistent with AB 32's reduction target) or to achieve carbon neutrality of scope 1 and 2 emissions in 2025 (consistent with the Carbon Neutrality Initiative), it would purchase carbon offsets and/or renewable energy certificates sufficient to reduce GHG impacts to a less than significant level, consistent with the 2020 LRDP EIR Addendum #5's determination of GHG impacts. In addition, the Project would implement the policies described in the 2020 LRDP EIR, as amended. The Project would also be consistent with the strategies and goals of the 2025 Carbon Neutrality Framework and the 2017 Climate Change Scoping Plan and, therefore, would not conflict with any applicable plan adopted for the purpose of reducing the emissions of GHGs.

8. HAZARDOUS MATERIALS

SETTING

This section assesses the Project's effects on human health and the environment due to exposure to hazards and hazardous materials that could be encountered. The potential for impacts from toxic air emissions is considered in Air Quality, above.

To identify potential hazardous materials on the Project site, a Phase I Environmental Site Assessment (ESA) was performed by Langan Engineering and Environmental Services, Inc. in November 2017. This study involved a review of the Project site's land use history, current use of the site, a search of environmental databases for records of hazardous materials on and near the site, interviews with site owners, and inquiries at local agencies (Langan 2017). Based on this research, the Phase I ESA does not identify any potential contamination with hazardous materials on-site. During site reconnaissance no indication of spills or leaks from past on-site activities was observed. Minor oil stained surfaces were observed in both the Upper Hearst parking structure and the Ridge Lot, typical of areas used to park vehicles. Langan determined that oil staining represents a *de minimis* condition, not an environmental concern.

The Upper Hearst Development would be designed, constructed, operated, and maintained consistent with the California Health and Safety Code Division 2.5, Chapter 3, Section 1797.182, California Code of Regulations (CCR) Title 22, Chapter 20 and California Building Code Title 24, Chapter 31B. California Health and Safety Code, Section 25500, et seq., and the related regulations in 19 CCR 2620, et seq., which address the storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local Certified Unified Program Agency (CUPA) and report releases to the CUPA or lead agency. The threshold quantities for hazardous materials are 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases measured at standard temperature and pressure. The storage of sodium hypochlorite and muratic acid on-site in the quantities proposed would require preparation of a HMBP.

The UC Berkeley Office of Environment, Health, and Safety (EH&S) has primary responsibility for coordinating the management of hazardous materials on campus in compliance with applicable laws, regulations, and standards and oversees the storage, use, and disposal of hazardous materials campus-

wide. The UC Berkeley EH&S Designated Urgent Response Team (DURT), staffed by health and safety professionals, hazardous materials technicians, and licensed hazardous materials drivers, responds to most minor hazardous materials incidents reported on campus. Currently, the DURT is able to respond to an incident within 15 minutes. In the infrequent cases when outside assistance is required, the DURT may request assistance from other nearby agencies, including the Berkeley Fire Department (BFD) and Alameda County Fire Department (ACFD), or from emergency response contractors.

All hazardous materials would be required by existing regulations to be handled and stored in accordance with applicable codes and regulations referenced above. Specific requirements of the California Fire Code Title 24, Part 9 that reduce the risk of fire or the potential for a release of hazardous materials that could affect public health or the environment include:

- Provision of an automatic sprinkler system for indoor hazardous material storage areas.
- Provision of an exhaust system for indoor hazardous material storage areas.
- Separation of incompatible materials by isolating them from each other with a noncombustible partition.
- Spill control in all storage, handling, and dispensing areas.
- Separate secondary containment for each chemical storage system. The secondary containment is required to hold the entire contents of the tank plus the volume of water for the fire suppression system that could be used for fire protection for a period of 20 minutes in the event of a catastrophic spill.

In addition, HMBPs include an inventory and location map of hazardous materials on-site and an emergency response plan for hazardous materials incidents. Specific topics to be covered in the plan include:

- Facility identification
- Emergency contacts
- Chemical inventory information (for every hazardous material)
- Site map
- Emergency notification data
- Procedures to control actual or threatened releases
- Emergency response procedures
- Training procedures
- Certification

HMBPs are filed with the Office of EH&S and updated annually in accordance with applicable regulations. The Office of EH&S ensures review by and distribution to other potentially affected agencies including the BFD.

In accordance with emergency response procedures specified in the HMBP, designated personnel will be trained on appropriate methods to mitigate and control accidental spills.

2020 LRDP & 2020 LRDP EIR

While the 2020 LRDP does not contain specific policies concerning hazardous materials, it does present objectives and policies that indirectly support the safe use of these materials. Three 2020 LRDP Objectives are particularly relevant:

- **Plan every new project as a model of resource conservation and environmental stewardship.**
- **Provide the space, technology and infrastructure we require to excel in education, research, and public service.**
- **Plan every new project to represent the optimal investment of land and capital in the future of the campus.**

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the proposed Upper Hearst Development would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP related to hazardous materials. Where applicable, the Project would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice HAZ-4: UC Berkeley shall 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 would act to protect the health and safety of workers or others potentially exposed should hazardous site conditions be found.

2020 LRDP Continuing Best Practice HAZ-5: UC Berkeley shall continue to perform hazardous materials surveys prior to capital projects in existing campus buildings. The campus shall continue to comply with federal, state and local regulations governing the abatement and handling of hazardous materials and each project shall address this requirement in all construction.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Hazardous Materials, although more people than projected in the 2020 LRDP could be exposed to hazardous materials as a result of the existing and projected campus headcount, the potential environmental impacts resulting from the increase in campus headcount are largely limited to physical development on the UC Berkeley campus and the City Environs. As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be additional to that planned for in the 2020 LRDP and would not result in additional physical environmental changes such as: the transport, production, or disposal of hazardous materials; upset and accident conditions involving the release of hazardous materials; or emissions of hazardous or acutely hazardous materials within one-quarter mile of an existing or proposed school. No campus physical development would occur on an active hazardous material site.

Therefore, the increase in UC Berkeley's existing and projected headcount would be within the scope of the 2020 LRDP EIR's analysis and would not result in significant impacts related to hazardous materials.

HAZARDOUS MATERIALS

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Create a significant hazard to the public or the environment through the routine transport, use, production, or disposal of hazardous materials?		●

Construction and operation of the proposed academic and residential buildings would not require extensive or ongoing use of materials that would create a significant hazard to the public. The academic building would serve GSPP and would not involve laboratory or other uses that require the use, production, and disposal of large quantities of hazardous materials. All materials used on site, such as the routine use of cleaning supplies to maintain the proposed buildings, would be applied per manufacturing specifications. Thus, the proposed development would not create a significant hazard to the public or environment through the routine transport, use, production, or disposal of hazardous materials. Consistent with the 2020 LRDP EIR's analysis, this impact would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
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?		●

As discussed above, any hazardous materials used for construction or operation of the Upper Hearst Development would be managed by the University's Office of EH&S, consistent with applicable regulations. Thus, the proposed development would not create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Consistent with the 2020 LRDP EIR's analysis, this impact would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?		●

The Project site is not located within one-quarter mile of an existing or proposed k-12 school. Therefore, potential impacts to schools or child care facilities would not be greater than what was described in the 2020 LRDP EIR. No impact would occur.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Be located on a hazardous materials site as listed on the 'Cortese List' (compiled pursuant to Government Code Section 65962.5) and as a result create a significant hazard to the public or the environment?		●

Consistent with Continuing Best Practice HAZ-4 in the 2020 LRDP EIR, a Phase I ESA was prepared for the Project site in November 2017 to identify potential hazardous materials on-site. This study included a search of hazardous materials databases for nearby listed sites. No hazardous materials sites were identified within at least a quarter-mile radius of the Project site (Langan 2017). Rincon Consultants updated this finding by reviewing the California State Water Resources Control Board's GeoTracker database and the California Department of Toxic Substances Control's EnviroStor database in May 2018. No hazardous materials sites were listed within 0.5-mile of the Project site. Therefore, construction workers and building occupants would not be exposed to unanticipated contaminants in soil or groundwater. Consistent with the 2020 LRDP EIR's analysis, the Upper Hearst Development would have a less than significant impact related to hazardous materials sites.

SUMMARY OF HAZARDOUS MATERIALS ANALYSIS

Required adherence to applicable existing rules and regulations affecting the storage, use and transport of hazardous chemicals and continuing best practices in the 2020 LRDP EIR would avoid new or significant hazardous materials-related impacts not analyzed in the 2020 LRDP EIR. As discussed in the analysis above, the Upper Hearst Development's impacts would be within the scope of the 2020 LRDP EIR's analysis and would not result in significant impacts related to hazardous materials.

9. HYDROLOGY AND WATER QUALITY

SETTING

The hydrology and water quality setting of the campus is described in the 2020 LRDP EIR (Section 4.7). The following text summarizes context information for hydrology and water quality relevant to the Project.

The Adjacent Blocks North subarea generally drains through culverts into the north fork of Strawberry Creek. In this portion of the watershed, all overland flow is collected by curb-and-gutter systems and delivered through side inlets to the storm drainage culverts beneath local streets. Except for the narrowly landscaped perimeter, almost the entire Project site is currently paved and impervious; thus, the vast majority of site runoff is conveyed directly to existing storm drains.

2020 LRDP & 2020 LRDP EIR

The 2020 LRDP influences hydrology and water quality by guiding the location, scale, form and design of new University projects. The 2020 LRDP includes several policies and procedures for individual project review to support the 2020 LRDP Objectives. Those 2020 LRDP Objectives relevant to hydrology and water quality are shown below:

- **Plan every new project to serve as a model of resource conservation and environmental stewardship.**

- **Maintain and enhance the image and experience of the campus and preserve our historic legacy of landscape and architecture.**

The 2020 LRDP includes several policies and procedures for individual project review to support these Objectives. For each new project to serve as a model of resource conservation and environmental stewardship, the 2020 LRDP envisions developing a campus standard for sustainable design specific to its site, climate, and facility inventory.

CLEAN WATER ACT SECTION 402—NPDES PERMITS

The National Pollutant Discharge Elimination System (NPDES) stormwater permitting program, under Section 402(d) of the federal Clean Water Act (CWA), is administered by the Regional Water Quality Control Boards on behalf of Environmental Protection Agency (EPA) and establishes a framework for regulating nonpoint-source stormwater discharges (33 U.S. Code [U.S.C.] 1251). The objective of the NPDES program is to control and reduce discharges of pollutants to water bodies from surface water, which includes both municipal and industrial wastewater and stormwater runoff. Under the CWA, discharges of pollutants to receiving water are prohibited unless the discharge is in compliance with an NPDES permit. The NPDES permit specifies discharge prohibitions, effluent limitations, and other provisions such as monitoring deemed necessary to protect water quality based on criteria specified in the National Toxics Rule, the California Toxics Rule, and the San Francisco Bay Basin Plan.

The State Water Resources Control Board (SWRCB) has adopted a State-wide NPDES general permit for stormwater discharges associated with construction activities (Construction General Permit) (Order 2009-0009-DWQ), which became effective on July 1, 2010 (Amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ, effective July 17, 2012). Compliance with the Construction General Permit and preparation and implementation of a stormwater pollution prevention plan (SWPPP) that meets Construction General Permit conditions is required for sites that disturb 1 acre or more and drain to a separate storm sewer system. Construction activities subject to the Construction General Permit include clearing, grading, stockpiling, and excavation. Dischargers must eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of permanent post-construction management measures that would remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements. UC Berkeley is regulated by a NPDES permit as part of the Phase II Small Municipal Separate Storm Sewer System (MS4) Program.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the Project would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon hydrology and water quality. Where applicable, the Project would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practices HYD-1-a: During the plan check review process and construction phase monitoring, UC Berkeley (EH&S) will verify that the proposed project complies with all applicable requirements and BMPs.

2020 LRDP Continuing Best Practice HYD-1-b: UC Berkeley shall continue implementing an urban runoff management program containing BMPs as published in the Strawberry Creek Management Plan, and as developed through the campus municipal Stormwater Management Plan (SWMP) completed for its pending Phase II MS4 NPDES permit. UC Berkeley will continue to comply with the NPDES stormwater permitting requirements by implementing construction and post construction control measures and BMPs required by project-specific SWPPPs and, upon its approval, by the Phase II SWMP to control pollution. SWPPPs would be prepared as required by the appropriate regulatory agencies including the Regional Water Quality Control Board and where applicable, according to the UC Berkeley Stormwater Pollution Prevention Specification to prevent discharge of pollutants and to minimize sedimentation resulting from construction and the transport of soils by construction vehicles.

2020 LRDP Continuing Best Practice HYD-2-a: In addition to Hydrology Continuing Best Practices 1-a and 1-b above, UC Berkeley will continue to review each development project, to determine whether project runoff would increase pollutant loading. If it is determined that pollutant loading could lead to a violation of the Basin Plan, UC Berkeley would design and implement the necessary improvements to treat stormwater. Such improvements could include grassy swales, detention ponds, continuous centrifugal system units, catch basin oil filters, disconnected downspouts and stormwater planter boxes.

2020 LRDP Continuing Best Practice HYD-2-b: Where feasible, parking would be built in covered parking structures and not exposed to rain to address potential stormwater runoff pollutant loads. See also HYD-2-a.

2020 LRDP Continuing Best Practice HYD-2-c: Landscaped areas of development sites shall be designed to absorb runoff from rooftops and walkways. The Campus Landscape Architect shall ensure open or porous paving systems be included in project designs wherever feasible, to minimize impervious surfaces and absorb runoff.

2020 LRDP Continuing Best Practice HYD-3: In addition to Best Practices 1-a, 1-b, 2-a and 2-c above, 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 would 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.

2020 LRDP Continuing Best Practice HYD-4-a: In addition to Hydrology Continuing Best Practices 1-a, 1-b, and 2-c, the campus storm drain system would be maintained and cleaned to accommodate existing runoff.

2020 LRDP Continuing Best Practice HYD-4-b: For 2020 LRDP projects in the City Environs (excluding the Campus Park or Hill Campus) improvements would be coordinated with the City Public Works Department.

2020 LRDP Continuing Best Practice HYD-4-e: UC Berkeley shall continue to manage runoff into storm drain systems such that the aggregate effect of projects implementing the 2020 LRDP is no net increase in runoff over existing conditions.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Hydrology and Water Quality, the potential environmental impacts resulting from the increase in campus headcount are mostly limited to physical development on the UC Berkeley campus and City Environs, with the exception of risks associated with flooding and inundation where more people than projected in the 2020 LRDP could be exposed to these risks. As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be additional to that planned for in the 2020 LRDP. Accordingly, the increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could affect attainment of water quality standards or water discharge requirements, affect ground water supplies, alter drainage patterns, create excessive water runoff, or substantially degrade water quality. In addition, the increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could place housing within a 100-year flood hazard area or place structures within a 100-year flood hazard area which would impede or redirect flood flows. The increased campus headcount would not result in exposure of people or structures to inundation or to risks of tsunamis, mudflows, or seiches for the reasons set forth in the 2020 LRDP EIR. The increase in UC Berkeley's existing and projected headcount also would be within the scope of the 2020 LRDP EIR's analysis and would not result in significant impacts related to hydrology and water quality.

HYDROLOGY & WATER QUALITY

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Violate any water quality standards or waste discharge requirements?		●

The Upper Hearst Development would be subject to water quality standards that regulate stormwater runoff and associated pollutants. Because construction activity on the Project site would involve ground disturbance on greater than one acre, it would be required to comply with the State-wide NPDES Construction General Permit (Order 2009-0009-DWQ). Earth movement on-site would expose soil to water runoff and entrain sediment in the runoff. Stormwater runoff from the Project site would enter storm drainage culverts and eventually the San Francisco Bay. Sediment in discharge water as well as soil and debris on the haul truck tires, which in turn can be deposited on local streets, could cause increased sediment to be carried off site into the storm drain/sewer, potentially clogging inlets and reducing the functional capacity of the pipes to convey flows. However, the Construction General Permit would require preparation of a SWPPP to reduce/eliminate surface water pollution throughout the construction period. The SWPPP would include, at a minimum, specific and detailed management measures designed

to mitigate construction-related pollutants. The SWPPP typically includes the following specific information:

- The pollutants that are likely to be used during construction that could be present in stormwater drainage and non-stormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation;
- Spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;
- Personnel training requirements and procedures that must be used to ensure that workers are aware of permit requirements and proper installation methods for management measures specified in the SWPPP; and
- The appropriate personnel responsible for supervisory duties related to implementation, inspection, and maintenance of management measures.

UC Berkeley's Wastewater Quality Program also manages discharges to the sanitary sewers using innovative educational outreach and waste minimization incentives. The program has served as a model to others: its success at preventing pollution was recognized in 2003 when the campus was one of two honorees to be awarded EBMUD's Pollution Prevention Award for "exemplary performance in complying with discharge requirements." The campus also instituted the Drain Disposal Policy that sets forth various drain disposal restrictions to ensure compliance with sanitary sewer discharge standards (2020 LRDP EIR Vol. 1, p. 4.7-23).

Excavation also could encounter groundwater, resulting in effluent that requires treatment under the Construction General Permit. A geotechnical report prepared in February 2018 by Langan estimated the groundwater elevation at the Project site to range from approximately 10 to 40 feet below ground surface (bgs) (Appendix D). Excavation would reach a maximum of 23 feet below the surface. If construction were to occur during periods of heavy and sustained precipitation, groundwater could be encountered. Under these circumstances, ponding may also occur. In either case, dewatering may be required.

The Construction General Permit would require that any discharge resulting from dewatering activities be impounded in a sediment retention basin or other holding facility to settle the solids and provide treatment before discharge to receiving water to meet effluent limits for priority pollutants. As stated in the Construction General Permit, all dewatering effluent must:

- Be filtered or treated, using appropriate technology;
- Meet the numeric effluent limitations and numeric action levels for pH and turbidity; and
- Not cause or contribute to a violation of water quality standards.

Although authorized non-stormwater discharges are allowed under the NPDES Construction General Permit from uncontaminated groundwater dewatering (SWRCB 2010), it is unknown at this time whether dewatering effluent would be uncontaminated. If dewatering effluent is contaminated, the San Francisco Bay RWQCB may require an individual NPDES permit for dewatering effluent discharges. Therefore, through compliance with these requirements and regulations, construction-related impacts would not be significant.

Under existing conditions, the Project site is comprised primarily of an impervious asphalt pavement parking lot and a concrete parking structure, with the exception of minor landscaped areas. Although the Upper Hearst Development would not increase the impervious area on the Project site, stormwater would discharge directly to Strawberry Creek and San Francisco Bay and would therefore require preparation of a Stormwater Management Report, according to UC Berkeley's EH&S guidelines. According to the EH&S guidelines, all new development and redevelopment projects are also required to treat stormwater runoff by using Low Impact Development (LID) techniques such as:

- Vegetated areas
- Bioretention areas
- Flow-through planters
- Pervious pavers
- Green roofs
- Media filters

With implementation of LID techniques, all stormwater from the Project site would be treated prior to offsite discharge, and the volume of peak stormwater flow during storm events would not increase beyond existing conditions. Therefore, stormwater discharge quantities would not exceed the growth parameters assessed in the 2020 LRDP EIR, which found the potential impact on water quality standards and waste discharge requirements from implementation of the 2020 LRDP to be less than significant, given existing campus practices. (Best Practices HYD-1-a through HYD-1-d).

With required adherence to existing regulations, 2020 LRDP EIR mitigation measures and UC Berkeley's continuing best practices, no impacts to water quality standards or water discharge requirements greater than or different from what was evaluated in the 2020 LRDP EIR would occur.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Substantially deplete groundwater supplies or quality, or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?		●

As discussed in Hydrology and Water Quality item 1, excavation on the Project site could potentially result in dewatering of groundwater. However, the NPDES Construction General Permit would require that any discharge resulting from dewatering activities be impounded in a sediment retention basin or other holding facility to settle the solids and provide treatment before discharge to receiving water to meet effluent limits for priority pollutants. The extent of potential dewatering on an approximately one-acre site also would not substantially deplete groundwater supplies.

The 2020 LRDP EIR requires that if rainwater infiltration to groundwater is affected, UC Berkeley would design and implement improvements to retain and infiltrate stormwater to ensure there is no net decrease in the amount of water recharged to groundwater that serves to replenish Strawberry Creek: the volume of flows and times of concentration must be maintained at pre-development conditions (Continuing Best Practice HYD-3). Because the Project site is currently almost entirely covered with

impervious surface, and the Upper Hearst Development would not increase the area of impervious surface, the proposed Project would not interfere with groundwater recharge. The proposed bioretention facilities in landscaped areas would actually result in an incremental increase in infiltration of stormwater into the soil and recharge of groundwater. Therefore, the Upper Hearst Development would be within the scope of the 2020 LRDP EIR's analysis and would have a less than significant impact on groundwater supplies.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Substantially alter existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in substantial erosion, siltation or flooding on- or off- site?		●

As discussed above, the Project site is almost entirely impervious, and the Upper Hearst Development would not increase the area of impervious surface on-site. The 2020 LRDP EIR requires that new projects be sited and designed so the aggregate effect of projects under the 2020 LRDP is no net increase in runoff over existing conditions (Continuing Best Practice HYD-4-e). Consistent with this best practice, the development would include bioretention facilities that ensure no net increase in runoff. Additionally the site plans include several erosion control measures, referencing those described in the *2003 California Storm Water Best Management Practice Handbook*, to control and stabilize soil during construction, that would further reduce surface runoff that may result in erosion on- or off-site. No stream or drainage courses are located on-site; thus, the Upper Hearst Development would not alter existing drainage patterns or adversely affect post-construction hydrology or water quality and, consistent with the 2020 LRDP EIR's analysis, would have a less than significant impact.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?		●

As discussed in Hydrology and Water Quality item 3, the Upper Hearst Development would include bioretention facilities that ensure no net increase in the volume of stormwater runoff. These facilities would treat stormwater runoff prior to offsite discharge to stormwater drainage systems. Therefore, the impact on existing or planned stormwater drainage system would be less than significant and no greater than evaluated in the 2020 LRDP EIR.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
5. Otherwise substantially degrade water quality?		●

As discussed in Hydrology and Water Quality item 1, construction activity on the Project site would be subject to NPDES Construction General Permit requirements to retain and treat stormwater runoff before

offsite discharge. Proposed bioretention facilities also would treat stormwater runoff from the proposed buildings during their operation. UC Berkeley also would implement Continuing Best Practices HYD-1-a through HYD-1-d to meet water quality standards and waste discharge requirements across campus. Therefore, consistent with the 2020 LRDP EIR's analysis, the impact on water quality would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
6. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?		●

The Project site is not within a 100-year flood boundary, as illustrated on Figure 4.7-2 of the 2020 LRDP EIR Vol 1, p. 4.7-13. Thus, no housing would be placed within a 100-year flood hazard area.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
7. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?		●

The Project site is outside the 100-year flood zone, as illustrated on Figure 4.7-2 of the 2020 LRDP EIR Vol 1, p. 4.7-13. Thus, no structures would be placed within a 100-year flood hazard area.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
8. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?		●

The Campus Park, Hill Campus, and City Environs are outside the inundation hazard area for Berryman and Summit Reservoirs, which are both located north of the site. The Upper Hearst Development would not expose people or structures to inundation as a result of dam or levee failure.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
9. Be subject to inundations by seiches, tsunamis, or mudflows?		●

The City Environs is sufficiently inland and at a sufficiently high elevation that tsunamis and mudflows are not an anticipated risk. No large, open bodies of water that would represent a substantial seiche risk are located on or around the campus. The Project site would not be adversely affected by seiches, tsunamis or mudflows.

SUMMARY OF HYDROLOGY ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would not result in new significant hydrology and

water quality impacts (2020 LRDP EIR Vol 1, p. 4.7-24 to 4.7-35). As discussed in the analysis above, the Upper Hearst Development would be within the scope of the 2020 LRDP EIR's analysis and would not result in significant impacts related to hydrology and water quality.

10. LAND USE

SETTING

The Project site lies within the subarea designated in the 2020 LRDP as the Adjacent Blocks North. The Adjacent Blocks North subarea is defined in the 2020 LRDP as the blocks bounded by the Hill Campus, LBNL, Ridge Road, Scenic Avenue, Hearst Avenue, Oxford Street, and the Campus Park. Major campus facilities on these blocks include Etcheverry Hall, Soda Hall, GSPP, the Greek Theatre, and the Bowles, Stern, and Foothill residence halls. The land use setting of the Project site is generally described in the 2020 LRDP EIR (Section 4.8) in the discussion of the Adjacent Blocks North subarea. The southern boundary of the Project site has frontage along Hearst Avenue, which is a two-way traffic corridor that forms part of the perimeter street network around the Campus Park.

2020 LRDP & 2020 LRDP EIR

Review of individual projects under the 2020 LRDP would influence land use impacts by guiding the location, scale, form and design of new University projects. The 2020 LRDP includes a number of policies and procedures for individual project review to support the Objectives of the 2020 LRDP. While all the 2020 LRDP Objectives bear directly or indirectly on land use, the following are particularly relevant to the Project:

- **Provide the space, technology and infrastructure we require to excel in education, research, and public service.**
- **Provide the housing, access, and services we require to support a vital intellectual community and promote full engagement in campus life.**
- **Stabilize enrollment at a level commensurate with our academic standards and our land and capital resources.**
- **Build a campus that fosters intellectual synergy and collaboration endeavors both within and across disciplines.**
- **Plan every new project to represent the optimal investment of land and capital in the future of the campus.**
- **Plan every new project as a model of resource conservation and environmental stewardship.**
- **Maintain and enhance the image and experience of the campus, and preserve our historic legacy of landscape and architecture.**
- **Plan every new project to respect and enhance the character, livability, and cultural vitality of our city environs.**

The 2020 LRDP states that while the design of each campus building should reflect its own time and place, it should also reflect the enduring values of elegance and quality, and contribute to a memorable identity for UC Berkeley as a whole. Toward this goal, major capital projects would be reviewed at each stage of design by the UC Berkeley Design Review Committee, as prescribed by Continuing Best Practice AES-1-b.

The 2020 LRDP includes Location Guidelines, which prescribe location priorities for the various campus functions by land use zone. As explained in the 2020 LRDP:

"In order to optimize the use of campus resources, future capital investment and space utilization at UC Berkeley shall be informed by the Location Guidelines shown below. For each new capital project, the policy reviews undertaken at phase 1 and phase 2 of the Campus Project Approval Process, described in section 18 [of the 2020 LRDP], shall include a finding that the project conforms to the Location Guidelines, or state why an exception is warranted."

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the proposed Project would be implemented in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon land use. Where applicable, the Project would incorporate the following continuing best practices:

2020 LRDP Continuing Best Practice LU-2-b: UC Berkeley would make informational presentations of all major projects in the City Environs in Berkeley to the Berkeley Planning Commission and, if relevant, the Berkeley Landmarks Preservation Commission for comment prior to schematic design review by the UC Berkeley Design Review Committee. Major projects in the City Environs in Oakland would similarly be presented to the Oakland Planning Commission and, if relevant, to the Oakland Landmarks Preservation Advisory Board. Whenever a project in the City Environs is under consideration by the UC Berkeley DRC, a staff representative designated by the city in which it is located would be invited to attend and comment on the project.

2020 LRDP Continuing Best Practice LU-2-c: Each individual project built in the Hill Campus or the City Environs under the 2020 LRDP would be assessed to determine whether it could pose potential significant land use impacts not anticipated in the 2020 LRDP, and if so, the project would be subject to further evaluation under CEQA. In general, a project in the Hill Campus or the City Environs would be assumed to have the potential for significant land use impacts if it:

- Includes a use that is not permitted within the city general plan designation for the project site, or
- Has a greater number of stories and/or lesser setback dimensions than could be permitted for a project under the relevant city zoning ordinance as of July 2003.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Land Use, the potential environmental impacts resulting from the increase in campus headcount are limited to physical development on the UC Berkeley Campus and City Environs. As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased headcount would not be additional to that planned for in the 2020 LRDP.

Accordingly, the increase in UC Berkeley's existing and projected headcount would not involve additional physical development that could impede circulation or access in or near campus. In addition, an increased headcount would not result in new development that conflicts with the 2020 LRDP's locational guidelines and overall parameters for growth in residential, academic, and support facilities. Population growth on campus, and associated development that would not exceed the development parameters of the 2020 LRDP, also would not affect UC Berkeley's attainment of objectives in the 2020 LRDP to improve physical facilities while maintaining the character of campus and surrounding neighborhoods.

The following objective in the 2020 LRDP also would directly apply to enrollment levels:

> ***Objective:*** *Stabilize enrollment at a level commensurate with our academic standards and our land and capital resources.*

UC Berkeley has determined that it can accommodate higher enrollment while maintaining high academic standards and without exceeding its land and capital resources. Increasing headcount projections to accommodate additional students would also be consistent with UC Berkeley's responsibility under the Master Plan for Higher Education to increase its capacity commensurate with growth of the college-age population in California.

Although the increase in campus headcount has been accommodated within the 2020 LRDP development parameters, any development projects implementing the 2020 LRDP within the City Environs that have occurred to date or would be built in the future to accommodate the campus headcount would be subject to Continuing Best Practice LU-2-C, which would address consistency with relevant General Plans and zoning ordinances, ensuring that impacts would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The increase in UC Berkeley's existing and projected headcount would not result in additional physical development in any area designated for an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan.

LAND USE

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Physically divide an established community?		●

The Project site is a University-owned property that fronts on three public streets and is bounded to the west by the existing GSPP buildings and a four-story student housing building (Cloyne Court). No new roads or other linear features that would decrease circulation or access for the surrounding neighborhood are proposed. Pedestrian and vehicular access through the site would be maintained. The Project would not physically divide an established community. No impact would occur.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect?	●	

This analysis addresses the Project's consistency with the 2020 LRDP, the City's General Plan, and the City's Zoning Ordinance.

As a constitutionally created State entity, UC is not subject to local governments' regulations, such as City or County General Plans or land use ordinances, on property owned or controlled by the UC system and used in furtherance of its educational's mission. Although there is no formal mechanism for joint planning, UC campuses and medical centers (campuses) may consider, for coordination purposes, aspects of local plans and policies when it is appropriate and feasible. Campuses generally seek to maintain an ongoing exchange of ideas and information, and to pursue mutually acceptable solutions for issues that confront both the campuses and their surrounding communities.

2020 LRDP CONSISTENCY

As discussed in Section 4, *Relationship to 2020 LRDP*, the Upper Hearst Development would involve new development that is outside the 2020 LRDP's locational parameters but within its overall development parameters for student beds and square footage for the Berkeley campus as a whole. The 2020 LRDP's Location Guidelines prioritize the placement of academic programs in the Campus Park and student and faculty housing in the Housing Zone. The proposed academic building would be located outside of the Campus Park, while the proposed residential building would be located outside of the Housing Zone. Although the Upper Hearst Development would not adhere to these land use priorities, the Location Guidelines state that exceptions may be allowed where warranted. The proposed academic building would represent a logical expansion of GSPP's academic facilities in the Adjacent Blocks North subarea, being located adjacent to the program's existing complex. This building would also be located immediately across Hearst Avenue from the Campus Park, where the Location Guidelines prioritize academic programs. In addition, the proposed residential building would provide housing for faculty, visiting scholars, graduate students, and post-doctoral students in a location next to the Campus Park, which would minimize travel to campus.

The 2020 LRDP's Housing Zone includes areas within one mile of Doe Library or within one block of a transit line providing trips to Doe Library in under 20 minutes, except for sites with residential designations of under 40 units per acre in a municipal general plan. Because the City of Berkeley has designated the Project site for residential uses at a density of less than 40 units per acre, the Project site is outside of the 2020 LRDP's Housing Zone as currently defined. As a result, the Upper Hearst Development would not be in conformance with the 2020 LRDP's existing Location Guidelines. However, the residential building's site would meet the 2020 LRDP's location criterion of placing student housing within a one-mile radius of the center of campus, or within one block of a transit line providing trips to Doe Library in under 20 minutes. Therefore, the Project includes a minor land use amendment to the 2020 LRDP to allow an exception to the Location Guidelines to accommodate the Upper Hearst Development in its land use plan by adding the site to the Housing Zone. This amendment would make the development consistent with the 2020 LRDP's development assumptions.

The proposed academic and residential buildings would be within the overall development parameters of the 2020 LRDP. While the 2020 LRDP anticipated over 2.2 million net new gross square feet of development to the year 2020, UC Berkeley remains well below that envelope of development as of 2018, with 955,160 gross square feet constructed or under construction since implementation of the 2020 LRDP's building program. Therefore, the 37,000 square-foot academic building would not be beyond the overall growth anticipated in the 2020 LRDP. Similarly, UC Berkeley has substantial remaining capacity with almost 1,500 beds to add housing without exceeding the 2020 LRDP's anticipated increase of 2,600 student beds since 2004. With up to 225 new student beds, the new residential building would not exceed this development parameter.

The Upper Hearst Development also would be consistent with applicable 2020 LRDP Objectives, as discussed below, with the exception of objectives to preserve historic resources and the character of the City Environs.

> ***Objective:*** *Provide the space, technology and infrastructure we require to excel in education, research, and public service.*

The proposed buildings would expand the capacity of the Graduate School of Public Policy, accommodating growth in its graduate and Executive Education programs, and provide needed housing for faculty, visiting scholars, graduate students, and post-doctoral students.

> ***Objective:*** *Provide the housing, access, and services we require to support a vital intellectual community and promote full engagement in campus life.*
> ***Objective:*** *Build a campus that fosters intellectual synergy and collaboration endeavors both within and across disciplines.*

The proposed residential building would add housing units adjacent to the GSPP complex and the Campus Park, fostering collaboration among faculty, visiting scholars, and students, and engagement in academic pursuits.

> ***Objective:*** *Plan every new project as a model of resource conservation and environmental stewardship.*

The Upper Hearst Development would model resource conservation and environmental stewardship by incorporating measures to attain a minimum LEED Silver rating. These measures would improve energy efficiency, water conservation, and indoor air quality, among other environmental benefits.

> ***Objective:*** *Maintain and enhance the image and experience of the campus, and preserve our historic legacy of landscape and architecture.*
> ***Objective:*** *Plan every new project to respect and enhance the character, livability, and cultural vitality of our city environs.*

As discussed in Chapter 1, *Aesthetics*, the Upper Hearst Development would have an adverse effect on the image and architecture of the surrounding neighborhood because the new buildings would have an out-of-context mass/scale, architectural design, and palette of materials. In addition, they would not be consistent with UC Berkeley's Campus Design Standards related to height, setbacks, and perceived mass. As discussed in Chapter 5, *Cultural Resources*, the Upper Hearst Development would adversely affect the

setting and integrity of three qualifying historical resources adjacent to the Project site (Cloyne Court, the Beta Theta Pi house, and the Phi Kappa Psi house), which are surviving examples of the First Bay Tradition of the Arts and Crafts movement. Therefore, it would be inconsistent with the objective to respect the character and cultural vitality of the City Environs.

The Project would be consistent with applicable 2020 LRDP policies, as discussed below, with the exception of a policy to protect recreational fields.

> ***Policy:*** *Design future projects to minimize energy and water consumption and wastewater production.*
> ***Policy:*** *Design new buildings to a standard equivalent to LEED 2.1 certification.*
> ***Policy:*** *Design new buildings to outperform the required provisions of Title 24 of the California Energy Code by at least 20 percent.*

As discussed in Section 3.5, *Project Description*, the GSPP buildings would achieve a minimum LEED Silver rating and would target a Gold rating. These LEED ratings would be consistent with the 2020 LRDP's goal of striving for LEED Silver or an equivalent standard in new developments, wherever program needs, site conditions, and budget parameters permit. To obtain a minimum LEED Silver rating, the Upper Hearst Development would reduce the amount of potable water used in outdoor landscaping by 50 to 100 percent from baseline building performance and the amount of indoor water use by 20 percent from baseline building performance. Water demand for landscaping would be minimized through the use of native, drought-tolerant plants. The use of low-flow plumbing fixtures would also reduce wastewater production. The Project also would employ energy efficiency strategies in all building disciplines in order to achieve the 20 percent energy use reduction. The buildings' energy use would be reduced by 5 percent compared to baseline building performance in accordance with ASHRAE Standard 90.1-2010. Therefore, the Upper Hearst Development would be potentially consistent with the above policies.

> ***Policy:*** *Accommodate new and growing academic programs primarily through more intensive use of University owned land on and adjacent to the Campus Park.*
> ***Policy:*** *Increase single graduate student bed spaces to equal 50% of entering graduate students by 2020.*
> ***Policy:*** *Locate all new University housing within a mile or within 20 minutes of campus by transit.*

The Project would add up to 150 apartment units for faculty, staff, and graduate students on a University-owned property in the Adjacent Blocks North subarea, adjacent to the Campus Park. This addition of housing would increase the number of graduate student bed spaces on campus. New housing units would be located adjacent to the proposed academic building and the existing GSPP buildings, facilitating student access to campus. Therefore, the Upper Hearst Development would be potentially consistent with the above policies related to housing growth.

> ***Policy:*** *Replace and consolidate existing University parking displaced by new projects.*

When the construction of new buildings results in the loss of parking spaces, the 2020 LRDP recommends replacing displaced spaces on-site or elsewhere, in order to maintain the supply of parking on campus. The 2020 LRDP states that the scope and budget for each such project should include replacement parking spaces. The proposed Project would involve demolition of the Ridge Lot and the Upper Hearst parking structure, resulting in an aggregate loss of approximately 207 parking spaces. Although the

Upper Hearst Development would not involve direct replacement of these parking spaces, it would contribute in-lieu fees toward improvements to parking and transportation capacity for the campus. Therefore, the Upper Hearst Development would be potentially consistent with this policy to maintain an appropriate supply of parking on campus.

Policy: *Preserve existing recreational fields and restore the fields lost since 1990.*

The Upper Hearst Development would involve demolition of the La Loma recreational field, a UC Berkeley Recreational Sports venue on the roof of the Upper Hearst parking structure. The loss of this field would contribute to a long-term decrease in UC Berkeley's outdoor recreational spaces. UC Berkeley does not have immediate plans to compensate for this loss by building replacement recreational facilities. Therefore, the Upper Hearst Development would be potentially inconsistent with this policy to preserve and restore recreational fields.

CITY OF BERKELEY GENERAL PLAN

Although the University of California is not subject to the City's land use regulations, as discussed above, Continuing Best Practice LU-2-c in the 2020 LRDP EIR requires the assessment of projects in the City Environs for potential land use impacts if the proposed land use is not permitted by the City's General Plan. The proposed academic and residential buildings would be located on a site which the City of Berkeley General Plan has designated for Medium Density Residential use (Berkeley 2009). This land use designation is characterized by a mix of single-family homes and small to medium sized multi-family structures (Berkeley 2001). Building intensities in the Medium Density Residential designation range from 20 to 40 dwelling units per net acre, and the population density generally ranges from 44 to 88 persons per acre. The Upper Hearst Development would introduce a residential building up to six stories tall, with up to 150 apartment units on the approximately one-acre Project site, resulting in a building intensity of approximately 150 units per acre on-site. This intensity of development would exceed the typical range of 20 to 40 units per acre in the Medium Density Residential area. The General Plan also describes the compatible zoning districts for this land use classification as Restricted Multi-family Residential (R-2A), which allows approximately 17 units per acre, and Multiple-family Residential (R-3), which allows approximately 26 units per acre. The proposed residential building would exceed the scale of development envisioned in the City's Medium Density Residential designation. However, the proposed residential use would be allowed under the City's land use designation. The proposed academic use, as a school facility, also would be permitted in the R-3 zone. Therefore, the proposed land uses on the Project site would be consistent with land uses permitted under the municipal general plan.

CITY OF BERKELEY ZONING ORDINANCE

Although the City of Berkeley does not have land use jurisdiction over the Upper Hearst Development, Continuing Best Practice LU-2-c in the 2020 LRDP EIR requires the assessment of projects in the City Environs for potential land use impacts if the proposed number of stories would exceed the maximum permitted by zoning, or if the setback distances would be less than permitted by zoning. As stated in the 2020 LRDP EIR, "significant incompatibilities" could occur if a project conflicted with uses allowed under the local general plan or in terms of physical characteristics, such as height, setbacks, style, and materials.

The Project site is located in the City's Multiple-family Residential zone within the Hillside Overlay Boundary (R-3H). Section 23D.36.070 of the Berkeley Municipal Code sets a maximum height of three

stories for main buildings in the R-3 zone. The proposed residential building up to six stories in height and the proposed four-story academic building would both exceed this zoning standard for the number of stories.

Table 10 compares the minimum required and proposed setback distances for the new academic building in the City's R-3 zone. The minimum required setbacks in this zone apply to the first three stories of buildings.

Table 10:
Setback Distances for Academic Building

Story		Setbacks			
		Front	**Rear**	**Side**	**Building Separation**
1st	Proposed	8	10	10	10
	Minimum	*15*	*15*	*4*	*8*
2nd	Proposed	8	10	10	10
	Minimum	*15*	*15*	*4*	*12*
3rd	Proposed	8	10	10	10
	Minimum	*15*	*15*	*6*	*16*

Source: Berkeley Municipal Code, Section 23D.36.070D

As shown in Table 10, the proposed academic building would not meet the minimum R-3 zone standards for front, rear, and building separation setbacks. It is assumed that the residential building also would have zero setbacks from adjacent streets, which would not meet the R-3 zone's setback standards. Pursuant to Continuing Best Practice LU-2-c in the 2020 LRDP EIR, a project in the City Environs would be assumed to have the potential for a significant land use impact if it has a greater number of stories and/or lesser setback dimensions than permitted under City zoning. Because the proposed buildings would have a greater number of stories and lesser setback dimensions than could be permitted under City's R-3H zone, the physical characteristics of the Upper Hearst Development would be inconsistent with 2020 LRDP policy to minimize land use incompatibilities. Potential mitigation to minimize these land use incompatibilities would be infeasible because reducing the number of stories and increasing setbacks would impair attainment of Project objectives to meet housing demand. Therefore, the Upper Hearst Development would result in significant and unavoidable land use incompatibilities not foreseen in the 2020 LRDP EIR.

Based on the 2020 LRDP EIR's land use analysis, the 2020 LRDP would have a less than significant cumulative impact related to compatibility with land uses adjacent to new development (2020 LRDP EIR Vol 1, p. 4.8-20 to 4.8-21). In general, development under the 2020 LRDP would be compatible with adjacent general plan designations and thus with existing and future land uses. As discussed above, the proposed Upper Hearst Development would be inconsistent with 2020 LRDP policy to minimize incompatibilities with targeted densities in the City of Berkeley General Plan and with local zoning standards for height and setbacks. Nonetheless, this project-level land use incompatibility would not alter the 2020 LRDP EIR's finding that new development under the 2020 LRDP would generally be compatible

with adjacent land uses. Therefore, the Project would not contribute to a significant cumulative impact related to land use.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Conflict with any applicable habitat conservation plan or natural community conservation plan?		●

The Project site is not located within any area designated for an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan.

SUMMARY OF LAND USE ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would not result in new significant land use impacts (2020 LRDP EIR Vol 1, p. 4.8-15 to 4.8-21). The proposed Upper Hearst Development would be consistent with the 2020 LRDP's development assumptions with approval of a minor 2020 LRDP amendment to accommodate the proposed land uses on the Project site. However, the Upper Hearst Development would conflict with Continuing Best Practice LU-2-c as it relates to the City of Berkeley's local zoning because new buildings would be taller than allowed in the R-3 zone and their massing would encroach on required setbacks. Therefore, the Upper Hearst Development would result in significant and unavoidable land use impacts not foreseen in the 2020 LRDP EIR.

11. NOISE

SETTING

The noise setting of the campus is described in the 2020 LRDP EIR (Section 4.9). The following text summarizes context information for noise relevant to the Project. This is in part based on information contained with the 2020 LRDP EIR.

The noise environment on the UC Berkeley campus and the surrounding city environs results primarily from vehicular traffic on the street network. Intermittent noise from jet aircraft overflights contributes to the noise environment to a lesser extent. Noise levels in the Adjacent Blocks North subarea are highest along Hearst Avenue. Previous measurements in the Adjacent Blocks North subarea indicate average noise levels range from 49 dBA Leq at the top of the Greek Theatre in the evening to 67 dBA Leq at the intersection of Hearst Avenue and Scenic Avenue in the afternoon, including a measurement of 66 dBA Leq near the southeast corner of the Project site at La Loma Avenue and Hearst Avenue (2020 LRDP EIR Vol 1, Table 4.9-3, pages 4.9-10 and 4.9-11).

The Project site is surrounded by noise-sensitive receptors. Residential receptors border the site on the north by Ridge Road and older, modest-sized multi-family residential buildings across Ridge Road. Student housing is located to the east of the site across La Loma Avenue. Additional student housing is located to the west of the site near the GSPP buildings. Occupants of academic buildings near the Project site also may be sensitive to noise. Vehicular traffic is the major source of noise affecting the Project site and surrounding areas.

Existing ambient noise levels were measured in the vicinity of the Project site during a weekday PM peak hour on April 4, 2018, using an ANSI Type II integrating sound level meter. Short-term noise levels were measured near the site's east, west, and south boundaries to determine existing noise levels. As part of the Upper Hearst Environmental Noise Study prepared for the Upper Hearst Development by Charles M. Salter Associates, Inc. (Salter) in May 2018, two multi-day noise measurements were taken in the site vicinity between April 4th and 6th, 2018 (Appendix E). Tables 11 and 12 summarize the short-term and long-term measurement results, and Figure 26 shows the measurement locations.

Table 11:
Short-Term Noise Monitoring Results

Location	Sample Times	Distance to Primary Noise Source	Leq[15] (dBA)	Lmin (dBA)	Lmax (dBA)
Southwest border of Project site	4:12 – 4:27 p.m.	25 feet[1]	65.1	48.9	86.8
Western border of Project site near GSPP buildings	4:31 – 4:46 p.m.	100 feet[2]	64.2	50.9	87.7
Eastern side of Project site across La Loma Avenue near multi-family residences	4:48 – 5:03 p.m.	30 feet[3]	58.7	49.3	71.5

See Appendix E for noise measurement data.

[1] Distance to centerline of Hearst Avenue

[2] Distance to centerline of Ridge Road

[3] Distance to centerline of La Loma Avenue

Table 12:
Long Term Noise Monitoring Results

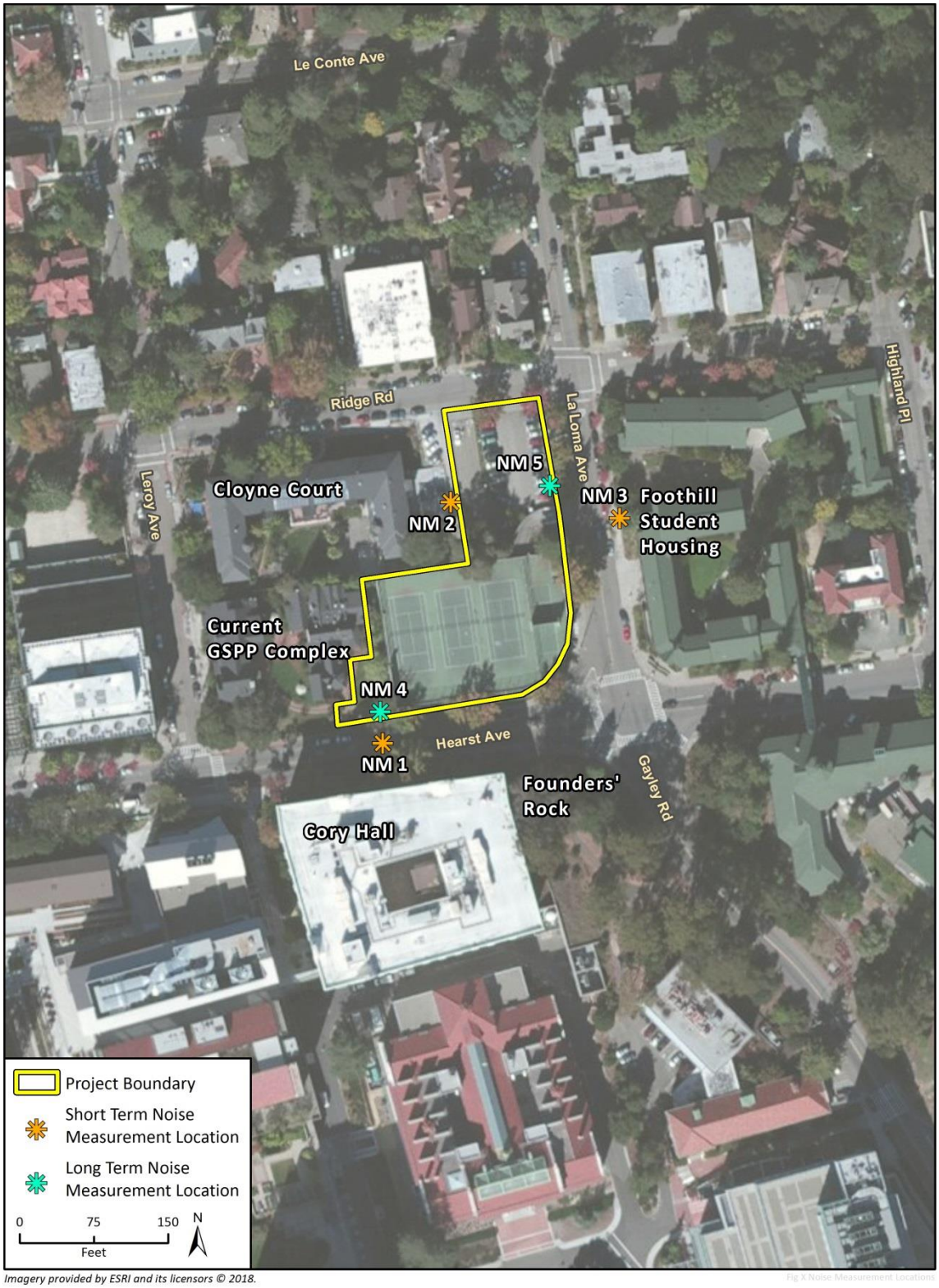
Location	Sample Dates	Distance to Primary Noise Source	Leq[h] (dBA)	Ldn (dBA)
Southwest border of Project site	April 4-6, 2018	25 feet[1]	72	70
Eastern border of Project site	April 4-6, 2018	30 feet[2]	67	66

See Appendix E for noise measurement data.

[1] Distance to centerline of Hearst Avenue

[2] Distance to centerline of La Loma Avenue

FIGURE 26 NOISE MEASUREMENT LOCATIONS



2020 LRDP & 2020 LRDP EIR

While the 2020 LRDP does not contain any policies that specifically address noise, several Objectives bear directly or indirectly on the noise environment, most importantly:

- **Maintain and enhance the image and experience of the campus, and preserve our historic legacy of landscape and architecture.**
- **Plan every new project to respect and enhance the character, livability, and cultural vitality of our city environs.**

Specific policies relevant to reducing noise impacts on and around the campus include: locating all new University housing within a mile or 20 minutes of campus by transit; reducing demand for parking through incentives for alternate travel modes; collaborating with cities and transit providers to improve service to campus; and minimizing private vehicle traffic in the Campus Park.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of projects that implement the 2020 LRDP would be performed in conformance with the following applicable mitigation measures and continuing best practices in the 2020 LRDP EIR to reduce their effect on the noise environment:

2020 LRDP Continuing Best Practice NOI-2: Mechanical equipment selection and building design shielding would 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 2020 LRDP. Controls that would typically be 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.

2020 LRDP Mitigation Measure NOI-3: The University would comply with building standards that reduce noise impacts to residents of University housing to the full feasible extent; additionally, any housing built in areas where noise exposure levels exceed 60 Ldn would incorporate design features to minimize noise exposures to occupants.

2020 LRDP Continuing Best Practice NOI-4-a: The following measures would be included in 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 area 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.

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.

2020 LRDP Continuing Best Practice NOI-4-b: UC Berkeley would continue to precede all new construction projects with community outreach and 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.

2020 LRDP Mitigation Measure NOI-4: UC Berkeley will develop a comprehensive construction noise control specification to implement additional noise controls, such as noise attenuation barriers, siting of construction laydown and vehicle staging areas, and the measures outlined in Continuing Best Practice NOI-4-a as appropriate to specific projects. The specification will include such information as general provisions, definitions, submittal requirements, construction limitations, requirements for noise and vibration monitoring and control plans, noise control materials and methods. This documentation will be modified as appropriate for a particular construction project and included within the construction specification.

2020 LRDP Mitigation Measure NOI-5: The following measures will be implemented to mitigate construction vibration:

- UC Berkeley will conduct a pre-construction survey prior to the start of pile driving. The survey will address susceptibility ratings of structures, proximity of sensitive receivers and equipment/ operations, and surrounding soil conditions. This survey will document existing conditions as a baseline for determining changes subsequent to pile driving.
- UC Berkeley will establish a vibration checklist for determining whether or not vibration is an issue for a particular project.
- Prior to conducting vibration-causing construction, UC Berkeley will evaluate whether alternative methods are available, such as:
  - Using an alternative to impact pile driving such as vibratory pile drivers or oscillating or rotating pile installation methods.
  - Jetting or partial jetting of piles into place using a water injection at the tip of the pile.
- If vibration monitoring is deemed necessary, the number, type, and location of vibration sensors would be determined by UC Berkeley.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Noise, the potential environmental impacts resulting from the increase in campus headcount are influenced both by physical development on the UC Berkeley campus and City Environs (e.g., exposing people to excess noise levels and temporary increases in ambient noise levels from demolition and construction activities) and by campus population numbers (e.g., permanent increases in ambient noise levels from increased vehicle trips). As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased

campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be additional to that planned for in the 2020 LRDP. New residents in UC Berkeley-provided housing would be exposed to ambient traffic noise. The 2020 LRDP EIR found that new residents may be exposed to noise levels exceeding applicable standards after mitigation, because of the academic importance of placing students in housing close to campus, resulting in a significant and unavoidable noise impact (2020 LRDP EIR Vol 1, p. 4.9-17). While additional residents may be exposed to excessive ambient noise, this impact would be within the scope of the 2020 LRDP EIR's analysis, and the increased headcount would not cause an impact more severe than the significant and unavoidable noise impact identified in that EIR for the 2020 LRDP program as a whole.

As discussed in Chapter 14, *Transportation and Traffic*, it is projected that the number of vehicle trips associated with the implementation of the 2020 LRDP, including those associated with the increased headcount, would remain lower than anticipated in the 2020 LRDP EIR for the year 2020. Therefore, increased headcount would not cause a permanent increase in traffic noise beyond that anticipated in the 2020 LRDP EIR, and this impact would be less than significant. The increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could generate excessive noise levels or ground-borne vibration from construction activity. These noise impacts related to increased headcount would fall within the development parameters of the 2020 LRDP and would be less than significant.

NOISE

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, without mitigation?	●	

The Upper Hearst Development would cause a significant noise impact if typical daily activities exceed the noise limits established in the Berkeley Noise Ordinance or cause a substantial increase in noise at sensitive receptors. The Berkeley Noise Ordinance establishes exterior noise limits, but in locations where the measured ambient noise level is greater than the limits established in the ordinance, the exterior noise limit is raised to the ambient noise level. The Project site is zoned R-3H, Multiple-family Residential, Hillside Overlay. Therefore, in accordance with Section 13.40.050 of the Berkeley Noise Ordinance allowable exterior noise levels on the Project site are 60 dBA Leq between 7:00 a.m. and 10:00 p.m. and 55 dBA Leq between 10:00 p.m. and 7:00 a.m. As shown in Table 11, the ambient noise level along Hearst Avenue in the vicinity of the Project site is approximately 65 dBA Leq. Because the measured ambient noise level of 65 dBA Leq exceeds the baseline allowable daytime exterior noise level, it becomes the daytime noise standard for purposes of this analysis.

On-Site Operational Noise

The primary noise sources associated with operation of the proposed buildings would include heating, ventilation, and air condition (HVAC) equipment at residential and academic buildings, and noise during

events held in open space areas at the academic building. This noise could affect sensitive receptors including residential receptors to the north, and student housing to the east and west, and academic buildings to the west and south. As prescribed in the 2020 LRDP EIR, mechanical equipment selection and shielding would be utilized to ensure noise levels from building operations do not cause City of Berkeley Noise Ordinance limits to be violated at nearby sensitive receptors. Measures to be incorporated to achieve this requirement include selection of quiet equipment, sound attenuators on equipment, and architectural enclosure of roof top equipment (Best Practice NOI-2). Pursuant to the 2020 LRDP EIR, Continuing Best Practice NOI-2 would reduce on-site mechanical noise to a less than significant impact.

The rooftop terrace located on top of the academic building would include public space and interaction areas. Noise generated at the rooftop terrace would consist of conversations during occasional social events or informal social activities. Conversations typically generate noise ranging from approximately 55 dBA Leq at 3 feet when there are normal conversations among a few people to 63 dBA Leq at 3 feet when there are approximately 20 people talking simultaneously (Los Angeles 2014). Assuming that the rooftop terrace would be located as close as 25 feet from residences at Cloyne Court, conversations from the rooftop terrace could reach approximately 45 dBA Leq at adjacent residences. Noise from outdoor events therefore would not approach the applicable ambient noise standard of 65 dBA Leq and would be less than significant.

Interior Noise

Section 1207 of the 2016 California Building Code (Title 24) requires that the indoor noise level in residential units of multi-family dwellings be at or below 45 dBA Ldn due to exterior sources. Section 5.507.4 of the CALGreen Code states that in areas where the exterior noise environment exceeds 65 dB, non-residential buildings should be designed to provide an interior noise environment that does not exceed 50 dBA Leq. This analysis assumes that hours of operation for the academic building could extend from 7:00 a.m. to 10:00 p.m. The 2020 LRDP EIR found that new residences could be exposed to excessive noise levels, especially where occupants face noisy streets, resulting in a significant and unavoidable impact for the 2020 LRDP program (2020 LRDP EIR Vol 1, p. 4.19-7).

As shown in Tables 11 and 12, ambient noise levels in the Project site's vicinity range from 66 dBA to 70 dBA Ldn on a 24-hour basis and 67 dBA to 72 dBA Leq during peak traffic hours. Based on this measured data, the Salter Noise Study calculated the expected interior noise levels at the various facades of the proposed buildings and determined that interior noise levels would exceed standards without the inclusion of specific building materials in the Project design. To reduce interior noise at the academic building to an acceptable level of 50 dBA Leq, the Noise Study recommends installation of windows with Sound Transmission Class (STC) ratings of up to 36. For the residential building to meet the Title 24 standard of 45 dBA Ldn, the Noise Study also specifies minimum recommended STC ratings for windows and doors. Implementation of Mitigation Measure NOI-3 in the 2020 LRDP EIR would ensure compliance with building standards that reduce noise impacts to building occupants, which would involve the inclusion of Project-specific building features recommended by the Noise Study. Therefore, the impact from the exposure of new residents and building occupants to ambient noise would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Result in a substantial permanent increase in ambient noise levels in the project vicinity, without appropriate mitigation?		●

As discussed in Noise item 1, the Upper Hearst Development would add new sources of on-site operational noise including HVAC equipment and human conversations during social gatherings in outdoor areas. However, such noise would not exceed applicable standards in the City's Noise Ordinance. Therefore, on-site operational noise would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Project site. As discussed in the 2020 LRDP EIR, a substantial permanent increase in noise would occur if traffic noise levels are projected to increase by greater than 3 dBA Ldn along roadway segments with adjoining noise sensitive land uses. The 2020 LRDP EIR estimated the increase in vehicular traffic noise by comparing traffic resulting from the implementation of the 2020 LRDP to existing traffic volumes along the roadway segments at the 74 intersections analyzed in the 2020 LRDP EIR. The predicted increase in vehicular traffic noise is 0 to 1 dB Ldn throughout the street network. As discussed in the Transportation analysis, the Upper Hearst Development would result in decreased peak-hour motor vehicle trips relative to existing conditions. Consistent with the 2020 LRDP EIR's analysis, the Upper Hearst Development would not result in a perceptible noise increase in nearby roadways. Therefore, the Upper Hearst Development would have a less than significant impact from permanent increases in ambient noise levels.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, without appropriate mitigation?		●

The 2020 LRDP EIR found that noise resulting from demolition and construction activities would, in some instances, cause a substantial temporary or periodic increase in noise levels, in excess of local standards prescribed in Section 13.40.070 of the City of Berkeley Noise Ordinance at affected residential or commercial property lines (2020 LRDP EIR Vol 1, p. 4.9-17).

It is anticipated that construction of the Upper Hearst Development would take 23 months, beginning in September 2019 and concluding in July 2021. The delivery of construction equipment, removal of demolished materials, hauling of soil, and use of concrete trucks would be intermittent during the first six months of construction. Heavy truck activity for material deliveries would be ongoing for the remainder of construction.

Construction activities at the Project site would occur within 50 feet of adjacent noise-sensitive residences. As discussed in the 2020 LRDP EIR, construction activity could potentially generate noise levels above the allowable levels in the Berkeley Noise Ordinance if such activities occur within about 280 feet of a single-family residence or 160 feet of a multi-family residence. Therefore, noise levels could intermittently and periodically substantially exceed existing ambient noise levels at the receiving properties. Implementation of Continuing Best Practices NOI-4-a, NOI-4-b, and 2020 LRDP Mitigation Measure NOI-4 would control construction-related noise to the extent that is reasonable and feasible. The schedule for construction and demolition activities generating noise in the community would, to the extent possible, reflect the Berkeley Noise Ordinance provisions. Truck traffic would travel to and from the Project site

using the City of Berkeley's designated truck routes, to the extent possible, and other major roadways (i.e., Hearst Avenue by the Project site). The siting of staging and laydown areas would consider minimizing noise as stipulated in Continuing Best Practice NOI-4-b. Even after implementation of these continuing best practices and mitigation measures, the noise impact from construction would be significant and unavoidable (2020 LRDP EIR Vol 1, p. 4.9-16 to 4.9-25). However, the Upper Hearst Development would not introduce any new potential impacts beyond those already assessed in the 2020 LRDP EIR.

Demolition and construction activity for cumulative projects, including the proposed Upper Hearst Development, would generate a temporary increase in ambient noise. However, construction noise is a localized issue, and other cumulative project sites are not located close enough to the Project site to result in substantially greater cumulative exposure to construction noise in any given location. As noted above, the Upper Hearst Development would not introduce a more adverse impact from construction noise than anticipated in the 2020 LRDP EIR, after implementation of continuing best practices and mitigation measures from the 2020 LRDP EIR. Increased headcount would not involve additional development beyond that planned for in the 2020 LRDP that could generate construction noise. Therefore, construction noise would not considerably contribute to a cumulative impact.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Expose people to or generate excessive ground-borne vibration or ground-borne noise levels, without mitigation?		●

Construction activities would expose nearby receptors and structures to ground-borne vibration. Construction activities can cause vibration that varies in intensity, depending on several factors. Of all construction activities, the use of pile driving equipment typically generates the highest ground-borne vibration level, followed by vibratory compaction equipment. The expected list of construction equipment for the Upper Hearst Development does not include pile drivers; however, other equipment such as bulldozers used in earth movement, vibratory rollers for paving, drill rigs for shoring work, and trucks loaded with construction materials could be used and may also generate strong vibration levels at adjacent land uses.

Adjacent land uses that are sensitive to vibration include residences at Cloyne Court, Foothill Student Housing, residences north of the Project site, and existing GSPP academic buildings. In addition, historic buildings adjacent to the site, such as the Beta Theta Pi house, could potentially be structurally vulnerable to strong vibration. The proximity of the Beta Theta Pi house to the proposed academic building (a minimum setback of 10 feet) would increase its exposure to vibration from construction activity on the Project site. Of the expected types of construction equipment, vibration rollers cause the highest estimated vibration level of 0.210 inches per second in peak particle velocity (PPV) at a reference distance of 25 feet from the source (FTA 2006). This vibration level would exceed the conservative vibration limit of 0.2 inches/sec PPV identified in the 2020 LRDP EIR for buildings that are found to be structurally sound yet where structural damage is a major concern.

Because vibration levels generated by construction activity could potentially cause structural damage, however unlikely, at adjacent historic buildings, implementation of Mitigation Measure NOI-5 in the 2020 LRDP EIR would be required. Although this measure was written to apply specifically to the use of pile

drivers in construction, portions of the measure are also appropriate for the proposed Upper Hearst Development because of its use of vibration-generating equipment and its close proximity to historic structures. Applicable elements of Mitigation Measure NOI-5 would involve conducting a pre-construction survey to address the susceptibility ratings of structures and soil conditions; and monitoring vibration if necessary during construction. Consistent with the 2020 LRDP EIR's analysis, implementation of this measure would reduce the potential impact from vibration on structures to less than significant.

SUMMARY OF NOISE ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, even with incorporation of existing best practices and 2020 LRDP EIR mitigation measures, could result in significant noise impacts resulting from demolition and construction activities (2020 LRDP EIR Vol 1, p. 4.9-16 to 4.9-25). The Upper Hearst Development may incrementally contribute to significant environmental impacts previously identified in the 2020 LRDP EIR, but would not result in those impacts being more severe than as described in the 2020 LRDP EIR. The potential impact of vibration on nearby structures would be less than significant with implementation of applicable measures in Mitigation Measure NOI-5 from the 2020 LRDP EIR. Analysis of noise impacts associated with operation of the Upper Hearst Development indicates that these would not exceed the noise limits established in the Berkeley Noise Ordinance or cause a substantial increase in noise at sensitive receptors and therefore impacts would be less than significant. Interior noise levels in the proposed academic and residential buildings would be acceptable with implementation of Mitigation Measure NOI-3 from the 2020 LRDP EIR.

12. POPULATION AND HOUSING

SETTING

The population setting of the campus is described in the 2020 LRDP EIR (Section 4.10). The 2020 LRDP describes campus population growth in terms of campus headcount. Campus headcount is the number of individuals enrolled or employed at UC Berkeley, plus an estimate of average daily visitors and vendors. Students make up the largest percentage of the campus headcount, followed by nonacademic staff, academic staff, and faculty; the academic staff category includes postdoctoral fellows and visiting scholars. The staff figures are adjusted to exclude student workers to avoid double-counting.

The 2020 LRDP projected that campus headcount during the regular academic year would increase from 45,940 in the 2001-2002 school year to 51,260 by the year 2020, resulting in a net gain of 5,320 people. This net increase in headcount included 1,650 more regular-term students and 2,870 more employees. Under the 2020 LRDP, the regular term campus headcount is projected to increase by up to 12 percent by the year 2020 over what it was in 2001-2002, compared to a projected increase of 6 percent in the City of Berkeley population, and 20 percent in the regional population, during the period 2000-2020. The Project site includes a parking structure and a surface parking lot; no housing is currently present.

2020 LRDP & 2020 LRDP EIR

The 2020 LRDP would influence population and housing by guiding the location, scale, form and design of new University projects. The 2020 LRDP includes a number of policies and procedures for individual project review to support the Objectives of the 2020 LRDP. 2020 LRDP Objectives particularly relevant to population and housing include:

- **Provide the housing, access, and services we require to support a vital intellectual community and promote full engagement in campus life.**
- **Stabilize enrollment at a level commensurate with our academic standards and our land and capital resources.**
- **Plan every new project to respect and enhance the character, livability, and cultural vitality of our city environs.**

MITIGATION MEASURES & CONTINUING BEST PRACTICES

The 2020 LRDP EIR does not include mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP related to population.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Population and Housing, the potential environmental impacts resulting from the increase in campus headcount are influenced both by physical development and by campus population numbers, which are incorporated into the analysis below.

POPULATION AND HOUSING

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	●	

The proposed Upper Hearst Development would have residential and academic components. These components would add residents and employees to the Project site, incrementally contributing to the projected increase in campus headcount and resulting population growth through the 2022-2023 school year. An increased headcount on the UC Berkeley campus also contributes to population growth in the City of Berkeley and the greater Bay Area region. Therefore, this analysis of population impacts considers the combined effect of the proposed Upper Hearst Development and increased campus headcount on population growth. The 2020 LRDP EIR's analysis of population impacts is summarized first, and then the Project's effects on population growth are compared to that analysis.

The 2020 LRDP EIR analyzed the effect of increased campus headcount under the 2020 LRDP on population growth, from a baseline 2001-2002 school year to a time horizon of 2020. It was assumed that, in addition to a direct increase in the student and employee populations at UC Berkeley, new employees would induce household growth in the Bay Area. The 2020 LRDP EIR used an average regional household size of 2.7 people to estimate household growth associated with employees. Based on a projected increase of 2,870 employees, total employment-related population growth would therefore be 7,750 people (2.7 x 2,870 employees). Accounting for 1,650 new students and 7,750 new people related to employment, the 2020 LRDP EIR estimated that the 2020 LRDP would cause a net population increase of 9,400 by the year 2020. The 2020 LRDP EIR found that this growth would represent a less than 1 percent increment of a projected 1.4 million increase in the Bay Area's regional population from 2000 to 2020. It would also not result in an exceedance of the City of Berkeley General Plan EIR's projected population for

the year 2020. Furthermore, additional student beds required to accommodate increased enrollment would not result in an exceedance of the City of Berkeley General Plan EIR's projected population for the year 2020. Finally, new housing would be located in areas most suitable for higher density (downtown and along major transit arterials). Therefore, the 2020 LRDP EIR found a less than significant impact related to population growth.

As shown by Table 4 in Section 4, *Relationship to 2020 LRDP*, it is projected that UC Berkeley's headcount would increase by 21.1 percent through the 2022-2023 school year beyond the 2020 LRDP EIR's projections for the year 2020. Student enrollment growth would drive this increase in headcount, while employment would slightly decrease compared with the 2020 LRDP EIR's projections. This change in the number of employees at UC Berkeley would in turn affect the population of employment-related households in the vicinity. Table 13 accounts for employment-related households in estimating the Project's effect on long-term population growth.

Table 13:
Comparison of Projected Population Growth under Increased Campus Headcount and 2020 LRDP

	Projected Population for Year 2020 in the 2020 LRDP	Estimated Population for 2022-2023 School Year	Net Change in Population	Percent Change
Student Enrollment[1]	*33,450*	*44,735*	*+11,285*	*+33.7%*
Employment-Related Population				
Employees	15,810	15,355	-	-
Employee households	26,877	26,104	-	-
Total[2]	*42,687*	*41,459*	*-1,228*	*-2.9%*
Other visitors & vendors	*2,000*	*2,000*	-	-
Overall total	***78,137***	***88,194***	***10,057***	***+12.9%***

[1] *Regular-term enrollment*

[2] *The employee-related population was estimated based on an average household size of 2.7 per employee, as used in the 2020 LRDP EIR.*

Source: UC Berkeley, August 2018

As shown in Table 13, it is estimated that the increased headcount relative to the 2020 LRDP EIR's projections would result in a net increase of 10,057 in population, based on greater student enrollment and fewer UC Berkeley employees and associated households. The increased student population over 2020 LRDP projections is a result of the increase in California's college-age population and the mandates of the Master Plan for Higher Education. It is assumed that most of the additional campus population would live in Berkeley or nearby parts of the Bay Area. The expected increase in population would represent approximately 0.7 percent of the projected 1.4 million increase in the Bay Area's population from 2000 to 2020, which would not substantially affect the regional population.

As of January 2018, the City of Berkeley has a population of 121,874 (California Department of Finance 2018), which includes students living in the city and on the UC Berkeley campus. The current citywide population already exceeds the City of Berkeley General Plan EIR's population forecast of 116,359 for the year 2020. The additional campus headcount would increase this existing exceedance of the General Plan EIR's population forecast. However, this analysis is conservative assumption because it assumes that all additional UC Berkeley students under the increased headcount would be new Berkeley residents. In reality, any students already residing in Berkeley would not increase the City's population. In addition, as discussed in Section 4, *Relationship to 2020 LRDP*, it is expected that UC Berkeley would accommodate the additional headcount without leading to physical development that exceeds the 2020 LRDP EIR's projected growth in student beds and building square footage. The 2020 LRDP anticipated the construction of 2,600 new student beds, perhaps entirely within the Housing Zone (2020 LRDP EIR Vol 1, p. 4.10-11). In implementing the 2020 LRDP, UC Berkeley has added 1,119 student beds through the end of 2018, leaving a balance of almost 1,500 student beds remaining under the 2020 LRDP's development parameter of 2,600 student beds. The addition of up to 225 beds on the Project site, some of which could serve graduate and post-doctoral students, would not result in more student beds than anticipated in the 2020 LRDP.

Additional student enrollment could indirectly result in an increase in student rentals of private off-campus housing in Berkeley's residential neighborhoods. This could lead to incrementally greater noise generated from existing sources such as human conversations on sidewalks and residential yards, especially during social gatherings. However, increased headcount would not introduce new sources of noise that may disturb residents, since neighborhoods near UC Berkeley already accommodate a high proportion of off-campus student rentals. Continued implementation of the Berkeley Noise Ordinance would also minimize exposure to high noise levels generated on properties in the city. Other indirect environmental effects of increased population are discussed in Chapter 13, *Public Services*, and Chapter 14, *Transportation and Traffic*, and would not result in additional significant environmental impacts beyond those anticipated in the 2020 LRDP EIR. Therefore, the Project, accounting for the updated campus headcount projections, would not result in significant indirect environmental impacts in off-campus neighborhoods.

Effects on the housing market are not in themselves environmental impacts, but the 2020 LRDP EIR analyzed this issue because it is a matter of public concern (2020 LRDP EIR Vol 1, p. 4.10-13 to 4.10-17). The 2020 LRDP EIR found that new UC Berkeley-provided housing would be more than adequate to accommodate growth in student enrollment, allowing students to vacate private housing units and make them available to other people. However, the projected increase of 11,285 students through the 2022-2023 school year beyond the 2020 LRDP EIR's projection for the year 2020 would place additional demand on the housing market. As noted above, the 2020 LRDP anticipates construction of 2,600 student beds. The additional student population would exceed anticipated growth in UC Berkeley-provided housing, placing greater demand on the private housing market. Nonetheless, it is expected that UC Berkeley would have 1,228 fewer employees than projected in the 2020 LRDP for the year 2020, which would reduce pressure exerted by employee households on the private housing market.

In summary, the proposed increase in campus headcount would generally be accommodated without significant adverse impacts. This is consistent with the 2020 LRDP EIR's finding that the effects of additional population under the 2020 LRDP program would in general be accommodated without significant adverse impacts (2020 LRDP EIR Vol 1, p. 4.10-10). Therefore, the Project would not result in a

new significant population impact beyond that already anticipated. The impacts of increased campus headcount with respect to specific environmental topics, such as biological resources and hazardous materials, are analyzed separately under these topical discussions in Section 6, *Environmental Evaluation*, of the SEIR. In addition, the site-specific impacts of the Upper Hearst Development, including new significant impacts related to visual character and quality and to land use incompatibilities beyond those anticipated in the 2020 LRDP EIR, are discussed separately elsewhere in Section 6.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere?		●

The Upper Hearst Development would not displace any housing and, therefore, would not necessitate the construction of housing elsewhere. This impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP would not displace substantial numbers of people or housing (2020 LRDP EIR Vol 1, p. 4.10-10). As discussed above, additional student enrollment through the 2022-2023 school year would exert greater demand on the private housing market. Greater housing demand would increase the incentive to construct additional private housing that caters to UC Berkeley students. If future projects are proposed that would require the displacement of substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere, their effects would be evaluated as required by CEQA on a project-specific basis (2020 LRDP EIR Vol 1, p. 4.10-10). The potential displacement of existing tenants in Berkeley also could result in an incremental increase in the population of homeless people living in Berkeley, although the social impacts of displacement are beyond the scope of environmental review under CEQA. The proposed increase in the headcount also may necessitate the construction of new UC Berkeley-provided housing; however, such construction would not require substantial displacements because the 2020 LRDP's land use strategy prioritizes the siting of new housing on UC Berkeley's current property and, where necessary, acquiring other sites where the displacement of existing tenants can be minimized. This impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

SUMMARY OF POPULATION ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would not result in new significant impacts related to population and housing (2020 LRDP EIR Vol 1, p. 4.10-10 to 4.10-19). The proposed Upper Hearst Development, along with the increased campus headcount baseline, would add to the population of Berkeley and the greater Bay Area region, beyond levels anticipated in the 2020 LRDP EIR. However, this population increase would not result in additional environmental impacts beyond those anticipated in the 2020 LRDP EIR related to noise, public services, and traffic. The Project, along with the increased headcount baseline, also would not result in significant impacts related to displacement of housing or people. Therefore, population and housing impacts would be within the scope of the 2020 LRDP EIR's analysis, which determined that impacts would be less than significant with implementation of continuing best practices.

13. PUBLIC SERVICES

SETTING

The public services setting of the campus is described in the 2020 LRDP EIR (Section 4.11). The following text summarizes and updates context information for public services relevant to the Project.

Police Protection

Police services in the Adjacent Blocks area are shared by the University of California Police Department (UCPD) and the City of Berkeley Police Department (BPD). The UCPD has a staff of 68 sworn police personnel, 83 full-time civilian personnel, and 45 student employees (UCPD 2018). The current ratio of officers per 1,000 campus population is 1.2 and the department's goal is 1.6 officers per 1,000 campus population (Miller 2018). The main UCPD office is located in Sproul Hall on the Campus Park. The UCPD has no plans for adding new facilities at this time. The BPD has a staff of 181 sworn officers, or roughly 1.49 authorized officers per 1,000 residents (Berkeley 2018). The BPD headquarters are located in the Public Safety Building on Martin Luther King Jr. Way at Center Street. UCPD and BPD partner to ensure appropriate service levels in areas proximate to the campus and coordinate at many levels. The patrol captains from each department confer several times per week about upcoming events, coverage and other relevant issues. UCPD completes a plan review of all proposed University buildings to maximize public safety features in and around proposed buildings. The plan check and design review process would continue to minimize police service impacts of development under the 2020 LRDP.

Fire Protection

The Berkeley Fire Department (BFD) provides fire protection and emergency medical services to the Adjacent Blocks area in the City of Berkeley. Primary response to the campus area from BFD comes from Station Number 2 at 2129 Berkeley Way. Stations 3 and 5 at 2710 Russell Street and 2680 Shattuck Avenue, respectively, offer supplemental support. The BFD provides 24-hour response for emergencies, including fire suppression, medical emergencies, hazardous materials events, and other life threatening situations. The BFD also supports these efforts with fire prevention, disaster preparedness, and public education programs, as well as training for all BFD staff.

UC Berkeley directly employs a campus fire marshal and deputy fire marshals who are responsible for fire prevention activities, including fire and life safety inspections of campus buildings for code compliance, fire and evacuation drills, and development of self-help educational materials for use by residence halls and campus departments (UC Berkeley Office of Environment, Health & Safety 2018).

The UC Berkeley Environment, Health & Safety Department, staffed by health and safety professionals and hazardous materials technicians, 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 and can be up to one hour during off hours. In the infrequent cases when outside assistance is required, the ERT may request assistance from other nearby agencies, including the BFD and Alameda County Fire Department, or from emergency response contractors (UC Berkeley Office of Environment, Health & Safety 2017).

The Office of Emergency Management supports the Berkeley campus community by implementing programs in emergency planning, to build, sustain, and improve the capacity of UC Berkeley to mitigate

against, prepare for, respond to, and recover from emergency disasters (UC Berkeley Office of Emergency Management 2018).

Schools

No public schools are located in the Adjacent Blocks area. This area is served by the Berkeley Unified School District (BUSD). The portion of the 2020 LRDP's Housing Zone located in Berkeley is served by the BUSD and the portion of the 2020 LRDP Housing Zone located in Oakland is served by the Oakland Unified School District (OUSD). The current enrollment and capacity of BUSD and OUSD schools are shown in Table 14.

Table 14:
Student Capacity and Enrollment Comparison

Area	Capacity[1]	Enrollment (2017-2018)[2]	Available Capacity
Berkeley Unified School District	11,904	10,340	1,564
Oakland Unified School District	53,474	50,231	3,240

[1] *Source: 2020 LRDP EIR Tables 4.11-1A and 4.11-1B. Assumes no change in capacity since 2020 LRDP EIR.*
[2] *Source: https://dq.cde.ca.gov/dataquest/*

Parks and Recreation

UC Berkeley manages over 28.7 acres of recreational space, which translates to 0.50 acres per 1,000 campus headcount population using the current headcount population of 57,637. Campus recreational facilities serve both UC Berkeley and the wider community. UC Berkeley recreational facilities in the Adjacent Blocks include the Maxwell Family field (Gayley Road at Centennial Drive) and the Memorial Stadium Fitness Center (Piedmont Avenue north of Bancroft Way) (UC Berkeley Rec Sports 2018). The area is also served by additional recreational facilities in the Campus Park, trails in the Hill Campus, and City of Berkeley, City of Oakland, and East Bay Regional Park District parks, trails and recreational facilities.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the Project would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon public services. Where applicable, the Project would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice PUB-1.1: UCPD would continue its partnership with the City of Berkeley police department to review service levels in the City Environs.

2020 LRDP Continuing Best Practice PUB-2.1-a: UC Berkeley would continue to comply with Title 19 of the California Code of Regulations, which mandates firebreaks of up to 100 feet around buildings or structures in, upon or adjoining any mountainous, forested, brush- or grass-covered lands.

2020 LRDP Continuing Best Practice PUB-2.1-b: UC Berkeley would continue on-going implementation of the Hill Area Fuel Management Program.

2020 LRDP Continuing Best Practice PUB-2.1-c: UC Berkeley would continue to plan and implement programs to reduce risk of wildland fires, including plan review and construction inspection programs that ensure that campus projects incorporate fire prevention measures.

2020 LRDP Continuing Best Practice PUB-2.3: UC Berkeley would continue its partnership with LBNL, ACFD, and the City of Berkeley to ensure adequate fire and emergency service levels to the campus and UC facilities. This partnership shall include consultation on the adequacy of emergency access routes to all new University buildings.

2020 LRDP Mitigation Measure PUB-2.4-a: In order to ensure adequate access for emergency vehicles when construction projects would result in temporary lane or roadway closures, campus project management staff would consult with the UCPD, campus EH&S, the BFD and ACFD to evaluate alternative travel routes and temporary lane or roadway closures prior to the start of construction activity. UC Berkeley will ensure the selected alternative travel routes are not impeded by UC Berkeley activities.

2020 LRDP Mitigation Measure PUB-2.4-b: To the extent feasible, the University would maintain at least one unobstructed lane in both directions on campus roadways at all times, including during construction. At any time only a single lane is available due to construction-related road closures, the University would provide a temporary traffic signal, signal carriers (i.e. flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway, UC Berkeley would provide signage indicating alternative routes. In the case of Centennial Drive, any complete road closure would be limited to brief interruptions of traffic required by construction operations.

2020 LRDP Continuing Best Practice PUB-2.4: To the extent feasible, for all projects in the City Environs, the University would include the undergrounding of surface utilities along project street frontages, in support of City of Berkeley General Plan Policy S-22.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Public Services, the potential environmental impacts resulting from the increase in campus headcount are accounted for in the analysis below.

PUBLIC SERVICES

POLICE PROTECTION

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Result in the need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, service times, or other performance objectives for police protection?		●

Police protection services for the Berkeley campus and Adjacent Blocks area are provided by the UCPD and the BPD. The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP could increase the demand for police services, but are not anticipated to result in construction of new or altered facilities. The Upper Hearst Development would not increase demand for police protection beyond that anticipated in the 2020 LRDP EIR because, as discussed in Section 4, *Relationship to 2020 LRDP*, it would fall within the overall development parameters of the 2020 LRDP for student beds and building floor area. Therefore, the Project would not introduce any new potential impacts related to police facilities beyond those already assessed in the 2020 LRDP EIR.

To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be additional to that planned for in the 2020 LRDP. Accordingly, the increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could increase the number of structures that require police service. However, it would increase the service population for police protection, as discussed below.

UCPD. As noted above, the UCPD's goal for service ratios is 1.6 officers per 1,000 campus population. Based on the projected campus headcount of 62,090 for the 2022-2023 school year, and assuming the current status of 68 sworn officers, the ratio would be 1.1 officers per 1,000 campus population. Although the department is not currently meeting its stated goal and would continue not to meet the goal, the UCPD is able to serve UC Berkeley's existing and projected headcount with its existing physical facilities. UCPD also has no plans for facility expansion. Therefore, no physical environmental impacts from the increase in the campus headcount would occur.

BPD. The City of Berkeley General Plan EIR found that demand for police services could increase as the result of higher density residential and commercial development, to be mitigated through an annual review of staff and resource needs. Since UCPD would be responsible for police services on campus and would continue to partner with the city in providing services with the increased campus population, no new BPD facilities are anticipated as a result of implementation of the 2020 LRDP. Police service impacts on the BPD would be further mitigated by Continuing Best Practice PUB-1.1. No additional impacts would occur beyond those analyzed in the 2020 LRDP EIR.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, may result in construction of new public service facilities, but these facilities are not anticipated to have significant cumulative environmental impacts (2020 LRDP EIR Vol 1, p. 4.11-32). The proposed Upper Hearst Development would not result in additional development than planned for in the 2020 LRDP and therefore would not contribute to the need for new police facilities to a greater extent than anticipated in the 2020 LRDP EIR. The Project would not considerably contribute to a significant cumulative impact related to police facilities.

FIRE AND EMERGENCY PROTECTION

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Result in the need for new or physically altered fire or emergency medical services facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, service times or other performance objectives for fire and emergency protection?		●

Fire and emergency medical services to the Project site are primarily provided by BFD. The proposed Project would change the use of the site to add housing and an academic facility to a parking facility, which could incrementally increase the demand for fire and emergency services to the site. However, the Upper Hearst Development would not increase overall campus demand for fire protection beyond that anticipated in the 2020 LRDP EIR. Further, the proposed buildings would be constructed to meet all applicable City Fire Code requirements for use of fire-resistant materials, sprinklers, and other fire prevention measures to reduce the need for fire and emergency response services. Therefore, the Upper Hearst Development would not result in the need for new or physically altered fire or emergency medical services facilities, and the impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP. Therefore, it would not increase the number of structures that require fire protection. However, it would increase the service population for fire protection. Measures prescribed in the 2020 LRDP EIR that would be applicable to fire services include continuing the campus partnership with LBNL, the Alameda County Fire Department station at LBNL, and the City of Berkeley to ensure adequate fire and emergency service levels (Continuing Best Practice PUB-2.3). With implementation of this continuing best practice, an increased headcount would not result in the need for new or physically altered fire or emergency medical services facilities, and the impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, may result in construction of new public service facilities, but these facilities are not anticipated to have significant cumulative environmental impacts (2020 LRDP EIR Vol 1, p. 4.11-32). The proposed Upper Hearst Development would not result in additional development than planned for in the 2020 LRDP and therefore would not contribute to the need for new fire protection facilities to a greater extent than anticipated in the 2020 LRDP EIR. The Project would not considerably contribute to a significant cumulative impact related to such facilities.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Expose people or structures to a significant risk of loss, injury or death involving wildland fires?		●

The Campus Park and its environs, including the Adjacent Blocks area, are presently urbanized and are not subject to a substantial risk of wildland fires. Therefore, the impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The increase in UC Berkeley's campus headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could be subject to wildland fires. Under the 2020 LRDP, housing construction also would not be allowed in more fire-prone part of UC Berkeley, the Hill Campus. The 2020 LRDP EIR determined that continuation of the fire prevention activities under Continuing Best Practices PUB-2.1-a, 2.1-b, and 2.1-c would result in a less than significant impact with regard to wildland fires. With continued implementation of these continuing best practices, the impact related to increased headcount would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		●

As required by the California Building Code, the proposed buildings would be designed to include adequate egress capacity and easily accessible evacuation areas. The buildings would not be sited in a location that would interfere with evacuation routes and would be required to comply with the campus Disaster Response Plan, which includes developing a Building Emergency Plan for each campus building. In addition, the Upper Hearst Development would not alter the alignment or capacity of any streets or access routes in the vicinity of the Project site or otherwise change existing circulation patterns in the area. Therefore, the impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The increase in UC Berkeley's existing and projected headcount would not involve physical changes to the environment that could interfere with emergency response. With continued implementation of control programs to avoid and reduce the potential for emergencies, the increase in the campus headcount would not result in an exceedance of emergency response capabilities. Therefore, the impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Result in inadequate emergency access?		●

The Upper Hearst Development would be constructed to meet the requirements of the California Building Code. Implementation of Continuing Best Practice PUB-2.3 would require consultation on the adequacy of emergency access routes to all new University buildings and would ensure adequate emergency access to the proposed buildings. The Project site also would be accessible directly from

Hearst Avenue via a standard driveway and street frontage. Therefore, the impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The increase in UC Berkeley's existing and projected headcount would not involve physical changes to the environment that could result in inadequate emergency access. As discussed in Chapter 14, *Transportation and Traffic*, it would also not increase the number of vehicle trips beyond the 2020 LRDP EIR's counts for the 2001-2002 school year. Therefore, the increase in the headcount would not result in additional traffic congestion that could impede the movement of emergency vehicles. The increase in headcount would be within the scope of the 2020 LRDP EIR's analysis and would have a less than significant impact.

SCHOOLS

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Result in the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, service times or other performance objectives for schools?		●

The 2020 LRDP EIR concluded any increased demand for schools associated with expanded enrollment and employment at UC Berkeley under the 2020 LRDP would not create a need for new or altered facilities (2020 LRDP EIR Vol 1, p. 4.11-20). Any incremental increase in demand for school facilities as a result of additional employment by the GSPP program would be consistent with this analysis. Therefore, the impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP could increase the demand for schools but was not anticipated to create a need for new or altered facilities. As shown in Table 13, the increase in UC Berkeley's existing and projected headcount would not require additional employment by UC Berkeley beyond that anticipated in the 2020 LRDP EIR. Therefore, it would not result in a greater number of families with school-age children and additional demand for school facilities. It is assumed that the vast majority of students do not have school age children. The impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP, in combination with other cumulative projects, may result in construction of new public service facilities, but these facilities are not anticipated to have significant cumulative environmental impacts (2020 LRDP EIR Vol 1, p. 4.11-32). Any incremental increase in demand for school facilities as a result of additional employment by the GSPP program would be within the scope of the 2020 LRDP EIR's analysis and would not substantially contribute to the need for new school facilities. The Project would not considerably contribute to a significant cumulative impact related to school facilities.

PARKS AND RECREATION

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Result in the need for new or physically altered parks and recreational facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, service times or other performance objectives?	●	

Demolition of the Upper Hearst parking structure would result in the loss of the La Loma athletic field on its rooftop. Currently, several tenants use this space on an infrequent basis under memoranda of understanding with UC Berkeley Recreational Sports including uses such as unmanned aerial vehicle development and rooftop gardening. After demolition of the field, UC Berkeley Recreational Sports would relocate existing recreational use to other campus facilities. Consistent with 2020 LRDP Mitigation Measure PUB-4.4, UC Berkeley has analyzed whether the loss of recreational use at La Loma field would result in increased use at other campus facilities to the extent it would result in the physical deterioration of those facilities. Because of the low level of existing recreational demand at La Loma field, UC Berkeley has determined that other facilities can accommodate this demand without causing overuse and physical deterioration of such facilities. New recreational space to compensate for the field's loss would not be needed.

The 2020 LRDP EIR concluded that any expanded demand for recreation under the 2020 LRDP would not increase the demand for recreation facilities to a point resulting in substantial physical deterioration of parks and recreation facilities, nor create the need for new or expanded facilities to maintain acceptable service ratios (2020 LRDP EIR Vol 1, p. 4.11-26). The addition of new residents on the Project site and expansion of GSPP's academic program would increase demand for recreational fields on campus. Because the supply of outdoor recreational space has decreased at UC Berkeley, greater demand would place further strain on remaining facilities to accommodate the projected campus headcount to 2022-23. However, it is assumed that continued implementation of the 2020 LRDP would involve the restoration of recreational fields that UC Berkeley has lost since 1990. With the construction of new fields, additional demand from an increased headcount would not cause substantial physical deterioration of park and recreational facilities. Therefore, the impact related to deterioration of park and recreational facilities would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The increase in the campus headcount would reduce the current service ratio of UC Berkeley facilities from 0.5 acres per 1,000 campus headcount cited above to 0.46 acres per 1,000, a decrease of approximately 8 percent. This incremental change in demand for recreational facilities would not result in the need for construction of additional facilities beyond those anticipated in the 2020 LRDP EIR. Furthermore, any new recreational facilities would be subject to Continuing Best Practice PUB-4.3 to incorporate all relevant 2020 LRDP mitigation measures and continuing best practices into their design and construction. Therefore, the impact related to construction of new park and recreational facilities would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR anticipated that implementation of the 2020 LRDP, in combination with other cumulative projects, would not increase the use of recreation facilities to an extent that could result in their substantial physical deterioration (2020 LRDP EIR Vol. 1, p. 4.11-32). As discussed above, the Project would not result in increased use at recreational facilities to the extent it would result in the physical

deterioration of those facilities, and the planned construction of new recreational facilities under the 2020 LRDP would accommodate greater demand. Therefore, the Project would not considerably contribute to a significant cumulative impact related to recreational facilities, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. 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?	●	

See previous item.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?		●

See item 1.

SUMMARY OF PUBLIC SERVICES ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would not result in new significant impacts upon public services (2020 LRDP EIR Vol 1, p. 4.11-11 to 4.11-15; 4.11-10; 4.11-26 to 4.11-28; 4.11-32 to 4.11-33). The Project does not alter assumptions of the 2020 LRDP with regard to emergency access and emergency services demand, or schools. Despite the proposed demolition of a recreational field, the Project would not result in overuse or physical deterioration of other recreational facilities or in the need to construction new facilities.

The increase in UC Berkeley's existing and projected headcount would not increase demand for public services to the extent that construction of additional facilities beyond those anticipated in the 2020 LRDP EIR would be required. Therefore, increased headcount would be within the scope of the 2020 LRDP EIR's analysis and would not result in new significant impacts related to public services.

14. TRANSPORTATION AND TRAFFIC

SETTING

The transportation setting of the campus is described in the 2020 LRDP EIR (Section 4.12), including bicycle, pedestrian and transit modes as well as automobiles. The following text supplements the 2020 LRDP EIR information and updates context information relevant to the Project, accounting for the increase in UC Berkeley's existing and projected headcount. The section is based on the *Upper Hearst Development – Transportation Assessment* prepared by Fehr & Peers in September 2018, Appendix F to this SEIR, and the *UC Berkeley Long Range Development Plan Trip Generation Comparison* prepared by Fehr & Peers in September 2018, Appendix G to this SEIR.

Existing Intersection Operations

Fehr & Peers collected weekday AM and PM peak period (7:00 to 9:00 AM and 4:00 to 6:00 PM) traffic counts, including counts of heavy vehicles, pedestrians and bicycles, at the Gayley Road/La Loma Avenue/Hearst Avenue intersection in April 2018, while UC Berkeley was in normal session. Based on the observed volumes, intersection control, and roadway configurations collected through field observations, Fehr & Peers calculated the AM and PM peak hour intersection level of service (LOS)[5] at the Gayley intersection using the HCM 2010 methodology. This analysis uses the LOS metric for traffic conditions rather than vehicle miles traveled to enable a direct comparison with the 2020 LRDP EIR's analysis of traffic impacts. Table 15 summarizes the existing weekday AM and PM peak hour intersection LOS analysis results. As shown in the table, the intersection operates at LOS B during both AM and PM peak hours.

Table 15:
Existing Weekday Intersection LOS Summary

Intersection	Control[1]	AM Peak Hour		PM Peak Hour	
		Delay (seconds)[2]	LOS	Delay (seconds)[2]	LOS
Gayley Road/La Loma Avenue/ Hearst Avenue	Signalized	16	B	17	B

[1] Average intersection delay and LOS based on the 2010 HCM method, unless noted. Average delay is reported for signalized intersections.

[2] Estimated based on 2010 HCM delay thresholds

Source: Fehr & Peers 2018

Existing Pedestrian and Bicycle Circulation

Within the Project study area, all roadways provide sidewalks on at least one side of the street and all intersections have marked crosswalks. The Hearst Avenue/Le Roy Avenue and Hearst Avenue/La Loma Avenue intersections are signalized with high-visibility ladder crosswalks on all approaches. The La Loma Avenue/Ridge Road and Le Roy Avenue/Ridge Road intersections are all-way stop-controlled intersections with standard (transverse lines) crosswalks. Both directions of Hearst Avenue are a bicycle route where bicyclists share the travel lane with motor vehicles. There are no designated bicycle facilities on La Loma Avenue, Gayley Road, Ridge Road, and Le Roy Avenue. The City of Berkeley's 2017 Bicycle Master Plan proposes Class III Bicycle Routes along La Loma Avenue and Gayley Road within the Project vicinity. Class III bicycle routes are signed bicycle routes where cyclists share a travel lane with vehicles and may include shared street markings. Sidewalks are provided along all roadway frontages within the vicinity of the Project site.

[5] The operations of roadway facilities are typically described with the term level of service (LOS), a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, which reflects free-flow conditions where there is very little interaction between vehicles, to LOS F, where the vehicle demand exceeds the capacity and high levels of vehicle delay result. LOS E represents at-capacity operations. When traffic volumes exceed the intersection capacity, stop-and-go conditions result and a vehicle may wait through multiple signal cycles before passing through the intersection; these operations are designated as LOS F.

Existing Transit and Shuttle Services

Transit service providers in the Project vicinity include AC Transit, which provides local and Transbay bus service; Bear Transit, which is UC Berkeley's shuttle system; and LBNL. The nearest bus stop to the Project site is on eastbound Hearst Avenue just east of Le Roy Avenue, which is shared with UC Berkeley Bear Transit. AC Transit Line 52 operates in a clockwise loop around Campus Park and provides connections to University Village in Albany, North Berkeley BART, and Downtown Berkeley. Line F operates in a clockwise loop around the Campus Park and provides connections to Downtown Berkeley, Ashby BART, Emeryville, and Downtown San Francisco. Table 16 summarizes the characteristics of the AC Transit Lines operating in the Project area. The Bear Transit Perimeter Line and the Night Safety Shuttle operate in a clockwise loop around Campus Park, and the Central Campus Line operates in a clockwise loop around the northern parts of the Campus Park and provides connections to Downtown Berkeley. Table 17 summarizes the characteristics of the UC Berkeley BEAR Transit lines in the Project area. The Blue and Orange Berkeley Lab routes providing connections to LBNL also run on Hearst Avenue next to the Project site.

Table 16:
AC Transit Service Characteristics

Line	Route	Nearest Stop	Weekday		Weekend	
			Hours	Headway[1]	Hours	Headway[1]
AC Transit Local Lines						
52	University Village to UC Campus	Eastbound Hearst Ave just east of Le Roy Ave	6:00 AM – 12:00 AM	15 (20)	8:00 AM-8:30 PM	20 (20)
AC Transit Transbay lines						
F	UC Campus to Transbay Terminal	Eastbound Hearst Ave just east of Le Roy Ave	5:00 AM – 1:30 AM	30 (30)	5:00 AM – 12:30 AM	30 (30)

[1] *Headway is the frequency, or interval of time, between buses travelling in any given direction along a designated route: Peak Period Headway (Off-Peak Period Headway).*

Source: Fehr & Peers 2018

Table 17:
Bear Transit Service Characteristics

Line	Route	Nearest Stop	Weekday		Weekend	
			Hours	Headway[1]	Hours	Headway[1]
Perimeter	Clockwise Loop around campus	Eastbound Hearst just east of Le Roy Avenue	7:00 AM – 7:30 PM	30 (30)	N/A	N/A
Central Campus	Downtown Berkeley to UC Campus	Eastbound Hearst just east of Le Roy Avenue	6:45 AM – 10:45 AM, 4:15 PM – 7:15 PM	20 (20)	N/A	N/A
Night Safety	UC Campus to BART, Clark Kerr Campus, and residences	Eastbound Hearst just east of Le Roy Avenue	7:30 PM – 3:00 AM	15-30	N/A	N/A

[1] *Headway is the frequency, or interval of time, between buses travelling in any given direction along a designated route: Peak Period Headway (Off-Peak Period Headway).*

Source: Fehr & Peers 2018

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the Project would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon transportation and traffic. Where applicable, the Project would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice TRA-1-b: UC Berkeley will continue to do strategic bicycle access planning. Issues addressed include bicycle access, circulation and amenities with the goal of increasing bicycle commuting and safety. Planning considers issues such as bicycle access to the campus from adjacent streets and public transit; bicycle, vehicle, and pedestrian interaction; bicycle parking; bicycle safety; incentive programs; education and enforcement; campus bicycle routes; and amenities such as showers.

2020 LRDP Continuing Best Practice TRA-2: The following housing and transportation policies will be continued:

- Except for disabled students, students living in UC Berkeley housing would only be eligible for a daytime student fee lot permit or residence hall parking based upon demonstrated need, which could include medical, employment, academic or other criteria.
- An educational and informational program for students on commute alternatives would be expanded to include all new housing sites.

2020 LRDP Mitigation Measure TRA-2: The planned parking supply for University housing projects under the 2020 LRDP would comply with the relevant municipal zoning ordinance as of July 2003. Where the planned parking supply included in a University housing project would make it ineligible for approval under the subject ordinance, UC Berkeley would conduct further review of parking demand and supply in accordance with CEQA.

2020 LRDP Continuing Best Practice TRA-3-a: Early in construction period planning UC Berkeley shall meet with the contractor for each construction project to describe and establish best practices for reducing construction-period impacts on circulation and parking in the vicinity of the project site.

2020 LRDP Continuing Best Practice TRA-3-b: 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 a.m. and p.m. peak traffic periods (7:00 – 9:00 a.m. and 4:00 – 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.

2020 LRDP Continuing Best Practice TRA-3-c: 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.

2020 LRDP Continuing Best Practice TRA-5: The University shall continue to work to coordinate local transit services as new academic buildings, parking facilities, and campus housing are completed, in order to accommodate changing demand locations or added demand.

2020 LRDP Continuing Best Practice PUB-2.3: UC Berkeley would continue its partnership with LBNL, ACFD, and the City of Berkeley to ensure adequate fire and emergency service levels to the campus and UC facilities. This partnership shall include consultation on the adequacy of emergency access routes to all new University buildings.

Upper Hearst Development Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Vehicle trips were estimated for the peak one-hour period during the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) commute periods when traffic volumes on the adjacent streets are highest. The trip generation for each component of the Upper Hearst Development is described below:

- **CAMPUS HOUSING.** The Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) was used to estimate the trips generated by the residential component of the project. The ITE trip generation rates are based on national data, collected in both suburban and urban locations, including dense urban locations with higher rates of non-automobile travel. Trips generated by the housing units were estimated using the ITE rates for off-campus student apartments adjacent to campus (ITE code 225), which estimates the number of trips generated based on the number of bedrooms. Although faculty may occupy more proposed housing units, the ITE rates for off-campus student apartments were used because they assume greater trip generation and provide for a more conservative traffic analysis. This analysis is also conservative in that the ITE data used to estimate trip generation is based on data collected at mostly urban sites that are more auto-dependent and provide more parking supply than the Project site's setting. Estimated trip generation does not account for the constrained parking supply at or near the site. The housing component of the Project is estimated to generate about 27 AM and 56 PM peak hour vehicle trips. Considering that the Project may not provide dedicated parking for residents and that on-street parking is generally at or near-capacity, as discussed above, it is likely that the Project would generate fewer vehicle trips than estimated.
- **ACADEMIC BUILDING**. Vehicle trip generation for the academic building component of the Project was estimated based on the methodology developed for the 2020 LRDP EIR and updated based on the results of the 2016-2017 commute survey of various population groups. The academic building component of the Project is estimated to generate about eight AM and seven PM peak hour trips. This estimate is conservative in that it does not account for the constrained parking supply at or near the site, assumes that all those who wish to drive to the site would be able to drive and park in the site vicinity, and assumes that the new academic building would result in up to 30 net new graduate students and 30 net new faculty and staff.
- **PARKING STRUCTURE**. Fehr & Peers collected peak period vehicle counts at the four existing parking driveways on Tuesday, May 1, 2018. These counts were used to develop an average trip generation rate per parking space for the AM and PM peak hours. Based on these rates, the loss of approximately 207 existing marked and attendant parking spaces is estimated to reduce trip

generation from existing conditions by 50 AM and 68 PM peak hour trips. Daily trips for the parking structure were estimated based on the observed trip generation rate per parking space in the 2020 LRDP EIR of about 2.6 daily trips per space.

Table 18 presents the trip generation estimates for the Upper Hearst Development. It is estimated to increase daily trip generation by about 150 trips, and reduce peak hour trip generation by about 15 trips during the AM peak hour and five trips during the PM peak hour. The reason that daily trips increase while peak hour trips decrease is due to the difference in the trip generation rate per space during the peak and off-peak hours. The trip generation rate per space is lower in the off-peak hours because most parking structure users enter and exit during the peak hours. Thus, the removal of parking would result in a relatively smaller decrease in daily trips than the decrease during peak hours.

Table 18:
Upper Hearst Development Trip Generation Estimates

Land Use	Size[1]	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Campus Housing								
Campus Housing	225 Bedrooms	710	11	16	27	28	28	56
Academic Building								
Graduate Student[2]	30 Students	10	1	0	1	0	1	1
Faculty and Staff[3]	30 Persons	30	6	1	7	1	5	6
Subtotal		*40*	*7*	*1*	*8*	*1*	*6*	*7*
Parking Structure[4]								
Parking Structure	-207 Spaces	-600	-48	-2	-50	-15	-52	-68
Net New Trips		***150***	***-30***	***15***	***-15***	***14***	***-18***	***-5***

[1] ITE Trip Generation (10th Edition) land use category 225 (off-campus student apartment) adjacent to campus setting:
Daily Rate: 3.15 trips per bedroom
AM Peak Hour Rate: 0.12 trips per bedroom (41% in, 59% out)
PM Peak Hour Rate: 0.25 trips per bedroom (50% in, 50% out)
[2] Based on the UC Berkeley 2020 LRDP methodology and the travel modes from 2016-2017 survey data:
Daily Rate: 0.23 trips per student
AM Peak Hour Rate: 0.05 trips per student (91% in, 9% out)
PM Peak Hour Rate: 0.05 trips per student (12% in, 88% out)
[3] Based on the UC Berkeley 2020 LRDP methodology and the travel modes from 2016-2017 survey data:
Daily Rate: 0.85 trips per faculty/staff
AM Peak Hour Rate: 0.20 trips per faculty/staff (91% in, 9% out)
PM Peak Hour Rate: 0.19 trips per faculty/staff (12% in, 88% out)
[4] Based on peak period driveway counts at the existing Upper Hearst parking facilities:
Daily Rate: 2.6 trips per parking space
AM Peak Hour Rate: 0.24 trips per parking space (96% in, 4% out)
PM Peak Hour Rate: 0.33 trips per parking space (23% in, 77% out)
Source: Fehr & Peers 2018

Since it is estimated that the Upper Hearst Development would reduce automobile trip generation during the AM and PM peak hours, it would not substantially deteriorate intersection operations near the Project site during peak conditions. The increase in daily trips would not warrant an intersection analysis because the increase in vehicle trips would be added to the study intersection during off-peak hours,

when overall intersection volumes are lower than during the peak hours. Additionally, the daily trips would be distributed across all off-peak hours, resulting in minimal additional trips per hour.

Campus Park Trip Generation

Using the most recent data available, Fehr & Peers estimated the current (2017-2018) automobile trip generation for people driving to and from the Campus Park, the 180-acre core area of campus, and estimated the automobile trip generation for the year 2022-2023 based on projected population increases. Table 19 summarizes the total trip generation for the 2001-2002 school year and 2020 as estimated by the 2020 LRDP EIR, and the actual 2017-2018 and estimated 2022-2023 trip generation based on more recent available data.

Table 19:
Campus Park Trip Generation Estimates

Scenario	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
2001-2002 (Based on 2001 Data)	20,550	4,309	430	4,739	565	4,033	4,598
Estimated 2020 LRDP	24,040	5,228	522	5,750	679	4,849	5,528
Actual 2017-2018	19,140	4,014	400	4,415	526	3,757	4,283
Estimated 2022-2023	20,420	4,238	427	4,710	562	4,008	4,570
2020 LRDP EIR (2001-2002 to 2020)[1]	3,490	918	92	1,010	114	816	930
Actual (2001-2002 to 2017-2018)[2]	-1,410	-295	-29	-324	-39	-276	-315
Estimated (2001-2002 to 2022-2023)[3]	-130	-26	-3	-29	-3	-25	-28

1. E = B – A
2. F = C - A
3. G = D – A
Source: Fehr & Peers 2018

Based on Fehr & Peers' analysis, both the current and projected 2022-2023 trip generation would be less than trip generation for the 2001-2002 school year and the estimated year 2020 as presented in the 2020 LRDP EIR. Additional details and assumptions are presented in Appendix G.

The estimated decrease in trip generation is also consistent with observed traffic volumes. The 2020 LRDP EIR evaluated the impacts of the 2020 LRDP at 75 intersections by collecting AM and PM peak period counts in 2002 and forecasting traffic volumes for year 2020 conditions with the completion of the 2020 LRDP. Fehr & Peers compared the traffic volumes and level of service (LOS) at 32 representative intersections where recent traffic data (2015-2018) is available, such as intersections on Hearst Avenue, University Avenue, Oxford Street/Fulton Street, and Shattuck Avenue. The total intersection volumes in 2015-2018 are on average about 11 percent lower during the AM peak hour and 16 percent lower during the PM peak hour than in 2002. Intersection delay in terms of LOS has improved at some studied intersections. Similarly, the total intersection volumes in 2015-2018 at the 32 intersections are on average about 34 percent lower during both peak hours than the year 2020 forecasts, as estimated in the 2020 LRDP EIR. The year 2020 intersection volume forecasts estimated in the 2020 LRDP EIR account for the completion of the 2020 LRDP and other likely developments in the City of Berkeley and beyond.

Similarly, BART ridership has also increased during the same period. Weekday exits at the Downtown Berkeley BART Station increased from about 10,800 in 2001 to 13,250 in 2017.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Transportation and Traffic, the potential environmental impacts resulting from the increase in campus headcount are accounted for in the analysis below.

TRANSPORTATION AND TRAFFIC

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	●	

The 2020 LRDP EIR determined that implementation of the 2020 LRDP would increase vehicle trips and traffic congestion at signalized intersections, leading to a significant and unavoidable impact on traffic flow because no mitigation measures would be feasible (2020 LRDP EIR Vol 1, p. 4.12-53). However, the trip generation analysis provided above estimates that the Upper Hearst Development would reduce existing AM peak-hour traffic by 15 vehicle trips and PM peak-hour traffic by five vehicle trips. Therefore, it would not considerably contribute to the 2020 LRDP program's significant and unavoidable impact on traffic flow. The Upper Hearst Development would have a less than significant impact on the performance of the circulation system.

As discussed above, the projected 2022-2023 trip generation for the Campus Park would be less than that of the 2001-2002 school year and less than the year 2020 projection as presented in the 2020 LRDP EIR. Therefore, the increase in UC Berkeley's existing and projected headcount would not increase the severity of the 2020 LRDP program's significant and unavoidable impact on traffic flow, and would not contribute to the 2020 LRDP's significant and unavoidable cumulative impacts on the traffic network.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?		●

The 2020 LRDP EIR found the 2020 LRDP program as a whole, if fully implemented, would cause seven Alameda County CMP and MTS designated roadways to exceed the level of service established by the Congestion Management Agency, as a result of increased parking supply and related vehicle trips. No mitigation measures are feasible, and the impact was determined to be significant and unavoidable (2020 LRDP EIR Vol 1, p. 4.12-54). The Upper Hearst Development would incrementally increase existing daily

vehicle trips while decreasing AM and PM peak-hour trips. The incremental increase in vehicles spread throughout the day would not introduce any new potential impacts not already assessed in the 2020 LRDP EIR. This impact would be within the scope of the 2020 LRDP EIR's analysis and would not be greater than identified for the 2020 LRDP EIR as a whole.

As discussed above, overall Campus Park projected 2022-2023 vehicle trip generation would be less than during the 2001-2002 school year and less than the year 2020 projection, as presented in the 2020 LRDP EIR. Therefore, the increase in UC Berkeley's existing and projected headcount would not result in an overall increase in traffic congestion. This impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficien
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?		●

The Upper Hearst Development would have no effect on air traffic patterns and would not be located in an area subject to substantial safety risks from aircraft overflights.

The increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could be subject to safety risks from aircraft. No impact would occur.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
4. Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? Create unsafe conditions for pedestrians or bicyclists?	●	

The Upper Hearst Development would involve reconfiguring access to the rebuilt parking structure on the Project site. Whereas the existing parking structure has three driveways, from Hearst and La Loma avenues and Ridge Road, the new parking structure would have a single driveway from Hearst Avenue. Based on preliminary site plans for the parking structure, the new Hearst Avenue driveway may not provide adequate sight distance between vehicles exiting the driveway and pedestrians on the adjacent sidewalk (Appendix F). Adequate sight distance is defined as a clear line-of-sight between a motorist 10 feet back from the sidewalk and a pedestrian 10 feet away on each side of the driveway. The potential lack of adequate sight distance would introduce a traffic hazard due to a design feature. Implementation of Mitigation Measure T-1 would be required to ensure adequate sight distance.

MM-T-1 The driveway to the rebuilt Upper Hearst parking structure on Hearst Avenue shall be designed to provide adequate sight distance between vehicles existing the parking garage and pedestrians on the adjacent crosswalk. Adequate sight distance is defined as a clear line-of-sight between a motorist 10 feet back from the sidewalk and a pedestrian 10 feet away on each side of the driveway. If the driveway cannot be sited to provide adequate sight distance, UC Berkeley shall install mirrors on both sides of

the driveway to aid drivers' and pedestrians' visibility. In addition, UC Berkeley shall install flashing lights to alert pedestrians when a vehicle is exiting the driveway.

With implementation of Mitigation Measure T-1, adequate sight distance would be provided at the driveway to the Upper Hearst parking structure. The Upper Hearst Development would not involve other significant changes in the road or path system, nor would it introduce any new types of vehicles that could create new design hazards. Therefore, the Upper Hearst Development's impact related to design hazards would be within the scope of the 2020 LRDP EIR's analysis and less than significant. The increase in UC Berkeley's existing and projected headcount would not require additional physical changes beyond those anticipated in the 2020 LRDP in the road or path system or introduce new roadway hazards. This impact would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
5. Result in inadequate emergency access?		●

See Public Services item 4, under the Fire and Emergency Protection topic.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?		●

The 2020 LRDP describes alternative transportation modes and includes policies to promote and expand their use. The Upper Hearst Development would not involve physical changes to bicycle, pedestrian, or transit facilities in public rights-of-way and would not increase traffic such that the performance of such facilities would be affected. Furthermore, an estimated 52 bicycle parking spaces would be provided in the new or renovated Upper Hearst parking structure. The number of new bike parking spaces would meet or exceed the number calculated by determining 10 percent of the average peak building use, as described in the Campus Bicycle Plan. Therefore, the Upper Hearst Development would be within the scope of the 2020 LRDP EIR's analysis and would have a less than significant impact.

Physical changes beyond those anticipated in the 2020 LRDP that would affect transit, bicycle, or pedestrian facilities. Although transit demand would increase, new transit facilities would not be needed, and the increased use of transit would be consistent with planning objectives for reduced greenhouse gas emissions. Therefore, the headcount increase would not generate demand for transit or bike/pedestrian facilities such that the performance or safety of such facilities would be affected or such that new facilities would be needed. This impact would be less than significant.

SUMMARY OF TRANSPORTATION AND TRAFFIC ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would as a whole result in significant impacts upon traffic and transportation, specifically upon two intersections in West Berkeley, primarily due to proposed increases in campus parking supply (2020 LRDP EIR Vol 1, p. 4.12-48 to 4.12-54).

As discussed in the analysis above, current (and projected through 2022-2023) trip generation associated with UC Berkeley is less than projected in the 2020 LRDP EIR for the year 2020, and the Project would not result in new significant impacts related to traffic. No additional mitigation measures have been identified that would further lessen the previously identified impact.

15. TRIBAL CULTURAL RESOURCES

SETTING

Public Resources Code Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and meets either of the following criteria:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
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 Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

The 2020 LRDP EIR did not address the issue of "tribal cultural resources" because its publication in 2004 preceded the passage of California Assembly Bill 52 of 2014 (AB 52), which expanded CEQA by defining this issue area as a new resource category. AB 52 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" (Public Resources Code Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

AB 52 also establishes a formal consultation process for California tribes regarding tribal cultural resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

UC Berkeley prepared and mailed formal notification letters for the proposed Project to tribes that previously requested to be notified by UC Berkeley of future CEQA projects in accordance with the provisions of AB 52 on July 5, 2018. As of October 2018, no responses have been received and no tribal cultural resources have been identified on-site.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Tribal Cultural Resources, the potential environmental impacts resulting from the increase in campus headcount are limited to physical development on the UC Berkeley campus and City Environs. As discussed in Chapter 5, *Cultural Resources*, the increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could

disturb or destroy tribal cultural resources. No impact related to increased campus headcount would occur.

TRIBAL CULTURAL RESOURCES

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code 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:	●	
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?, or		
b. 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 Public Resources Code Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significant of the resource to a California Native American tribe?		

As discussed above, no tribes contacted as part of the AB 52 consultation process for the Upper Hearst Development have identified the potential for tribal cultural resources to occur on the Project site. Moreover, as discussed in Chapter 5, *Cultural Resources*, based on the prior disturbance of the site, no cultural resources or human remains are expected to be present on the site. In the event that resources are discovered during construction, implementation of continuing best practices and mitigation measures in the 2020 LRDP EIR, including Continuing Best Practice CL-4-a and Mitigation Measure CUL-4b, would ensure a less than significant impact to tribal cultural resources.

16. UTILITIES AND SERVICE SYSTEMS

SETTING

The utilities and service systems of the campus are described in the 2020 LRDP EIR (Section 4.13). The following text summarizes context information for utilities and service systems relevant to the Project.

Water. Water supply and distribution to much of Alameda and Contra Costa Counties is provided by the East Bay Municipal Utilities District. EBMUD conducted a water supply assessment of the 2020 LRDP in January 2004. EBMUD indicated that, based on extensive forecasting in its water supply management program as well as recent land use-based demand forecasting, the projected water demand of 277 million gallons per day (mgd) in its entire service area can be reduced to 229 mgd with successful water recycling and conservation programs in place. The 2020 LRDP would not change the EBMUD 2020 LRDP demand projection (EBMUD 2004). In fact, overall water demand by UC Berkeley has decreased approximately 21 percent from 2004 to 2016 (Stoll 2018), despite new campus development during implementation of the

2020 LRDP and an increase in campus headcount above that anticipated in the 2020 LRDP. UC Berkeley's average water consumption was 1.9 mgd in 2017 (Wang 2018). The Project site would be served from EBMUD's Santa Barbara Regulated Pressure Zone (Maggiore 2018).

Wastewater. EBMUD provides wastewater collection for the entire 2020 LRDP area located in Alameda County and provides wastewater treatment for all of the 2020 LRDP area. Sanitary sewage flows toward the San Francisco Bay through a network of pipes and mains that connect into the EBMUD regional interceptor line, which conveys the sewage south to the EBMUD Special District No. 1 (SD-1) Wastewater Treatment Plant, which then discharges the treated effluent into the Bay from a submerged outfall pipe under the Bay Bridge (2020 LRDP EIR Vol 1, p. 4.13-7).

Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant (40 CFR, Chap.1, Subchapter N). Wastewater from the Project site would be treated by EBMUD which has an NPDES Direct Discharge permit to discharge treated wastewater into the San Francisco Bay. Under this permit, EBMUD imposes effluent guidelines and discharge limitations pursuant to the National Pretreatment Program on the campus via the local EBMUD ordinance and by the EBMUD discharge permit issued to the campus (UC Berkeley 2004).

UC Berkeley owns and maintains its own sanitary sewer infrastructure serving the Campus Park. UC Berkeley facilities adjacent to the Campus Park either feed into the University-owned system or connect directly to the City of Berkeley's system (2020 LRDP EIR Vol 1, p. 4.13-8). In this instance, the Project site would connect directly to the city's system via 6-inch lateral connections to sewer lines beneath La Loma Avenue and Hearst Avenue.

Stormwater. The City of Berkeley is responsible for stormwater conveyance within the Adjacent Blocks area of the 2020 LRDP. Currently, stormwater from the Adjacent Blocks flows to Strawberry Creek. The Adjacent Blocks West drains through culverts into lower Strawberry Creek in locations west of the Campus Park. In this portion of the watershed, all overland flow is collected by curb-and-gutter systems and delivered through side inlets to the storm drainage culverts beneath local streets.

A capital improvement program managed by the City of Berkeley maps the entire storm drain system, and schedules needed improvements, such as pipe replacements and enlargements. Ongoing maintenance programs include catch basin cleaning, street/sidewalk sweeping, site inspection, testing and monitoring, runoff control from new development, and public information and participation such as catch basin stenciling. Maintenance and improvements of the system are paid for by the General Fund and through hook-up fees paid by new development.

Solid Waste. During implementation of the 2020 LRDP, the amount of solid waste generated by UC Berkeley and sent to landfills for disposal has substantially decreased. In 2004 UC Berkeley generated 6,049 tons of solid waste (Stoll 2018). In 2016, however, the campus generated 4,062 tons of solid waste, representing a nearly 33 percent decrease from the 2004 total.

Steam. UC Berkeley owns and operates a steam heating distribution system for all buildings and facilities at UC Berkeley. Steam is generated from a cogeneration plant, fueled by natural gas, located behind the Evans Memorial Stadium. Steam is distributed from the central heating plant via a piping system to

individual buildings. The cogeneration plant is owned and maintained privately. Peak demand for steam is currently 249,000 pounds per hour and the plant's capacity is 353,000 pounds per hour; in 2002, UC Berkeley used 749 million pounds of steam (2020 LRDP EIR Vol 1, p. 4.13-16). Whenever UC Berkeley develops a preliminary project design for a new development, the Physical Plant/Campus Services Engineering and Utilities Department reviews the project to determine whether existing capacity of the steam system at the point of connection is adequate. If the capacity of the steam system is determined inadequate, UC Berkeley upgrades the system to provide adequate service to the project site before or as part of the project. In the event there is not enough capacity in the steam system, the campus would use natural gas or electricity for building heating and cooling.

On April 22, 2011, UC Berkeley published Addendum #8 to the UC Berkeley 2020 LRDP EIR, for the proposed design and construction of Electrical Switching Station #6. The project was approved on May 17, 2011. The addendum also analyzes a proposed brief amendment to the UC Berkeley 2020 LRDP, Campus Space and Infrastructure chapter, to reflect the need for improvements to the distribution system as may be required to accommodate 2020 LRDP development. CEQA findings in connection with the Addendum are available on the web at http://regents.universityofcalifornia.edu/regmeet/may11/gb2attach5.pdf and incorporated herein by reference.

MITIGATION MEASURES & CONTINUING BEST PRACTICES

Design and construction of the Upper Hearst Development would be performed in conformance with the 2020 LRDP. The 2020 LRDP EIR includes mitigation measures and continuing best practices developed to reduce the effect of the implementation of the 2020 LRDP upon utilities and service systems. Where applicable, the Upper Hearst Development would incorporate the following mitigation measures and/or continuing best practices:

2020 LRDP Continuing Best Practice USS-1.1: For campus development that increases water demand, UC Berkeley would 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 would 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 would be coordinated among UC Berkeley staff, EBMUD, and the Berkeley Fire Department.

2020 LRDP Continuing Best Practice USS-2.1-a: UC Berkeley will promote and expand the central energy management system (EMS), to tie building water meters into the system for flow monitoring.

2020 LRDP Continuing Best Practice USS-2.1-b: UC Berkeley will analyze water and sewer systems on a project-by-project basis to determine specific capacity considerations in the planning of any project proposed 2020 under the LRDP.

2020 LRDP Continuing Best Practice USS-2.1-c: UC Berkeley will continue and expand programs retrofitting plumbing in high-occupancy buildings and seek funding for these programs from EBMUD or other outside agencies as appropriate.

2020 LRDP Continuing Best Practice USS-2.1-d: 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, the use of drought resistant plantings in landscaped areas, and collaboration with EBMUD to explore suitable uses of recycled water.

2020 LRDP Continuing Best Practice USS-3.1: UC Berkeley shall continue to manage runoff into storm drain systems such that the aggregate effect of projects implementing the 2020 LRDP is no net increase in runoff over existing conditions.

2020 LRDP Continuing Best Practice USS-3.2: In addition to Best Practice USS-3.1, projects proposed with potential to alter drainage patterns in the Hill Campus would be accompanied by a hydrologic modification analysis, and would incorporate a plan to prevent increases of flow from the project site, preventing downstream flooding and substantial siltation and erosion.

2020 LRDP Continuing Best Practice USS-5.1: UC Berkeley would continue to implement a solid waste reduction and recycling program designed to reduce the total quantity of campus solid waste that is disposed of in landfills during implementation of the 2020 LRDP.

2020 LRDP Continuing Best Practice USS-5.2: In accordance with the Regents-adopted green building policy and the policies of the 2020 LRDP, the University would develop a method to quantify solid waste diversion. Contractors working for the University would be required under their contracts to report their solid waste diversion according to the University's waste management reporting requirements.

2020 LRDP Mitigation Measure USS-5.2: Contractors on future UC Berkeley projects implemented under the 2020 LRDP will be required to recycle or salvage at least 50% of construction, demolition, or land clearing waste. Calculations may be done by weight or volume but must be consistent throughout.

APPROACH TO CAMPUS HEADCOUNT BASELINE UPDATE

For Utilities and Service Systems, the potential environmental impacts resulting from the increase in campus headcount are influenced both by physical development on the UC Berkeley campus and City Environs (e.g., capacity of water entitlements, water facilities, and stormwater drainage facilities) and by campus population numbers (e.g., solid waste generation). As noted in Section 4, *Relationship to 2020 LRDP*, UC Berkeley has constructed approximately 43 percent of the 2.2 million net new gross square feet of development anticipated in the 2020 LRDP despite the increased campus headcount above 2020 LRDP projections. To accommodate an increased campus headcount through the 2022-2023 school year, it is assumed that UC Berkeley would continue to add new academic and support space. However, because substantial development capacity remains under the 2020 LRDP, future physical development associated with an increased campus headcount would not be additional to that planned for in the 2020 LRDP.

While the increase in UC Berkeley's existing and projected headcount beyond that anticipated in the 2020 LRDP would result in a modest increase in water demand from greater use of sinks, toilets, and water fountains in University facilities, the types and sizes of various land uses are the primary drivers of water demand from campus, and EBMUD considers these factors rather than population size in projecting water demand. UC Berkeley has decreased water demand by approximately 21 percent during implementation of the 2020 LRDP from 2004 to 2016, even while accommodating growth in headcount and new development, as a result of initiatives to improve water efficiency. As a result, UC Berkeley's

water use decreased to 1.9 mgd in 2017 (Wang 2018). Furthermore, the increase in headcount would not lead to additional physical development beyond that planned for in the 2020 LRDP that would generate new demand for water based on EBMUD's water demand factors. Through continued implementation of water efficiency measures, the greater headcount would not increase UC Berkeley's overall water demand from EBMUD beyond that of the overall 2020 LRDP program. The increase in UC Berkeley's existing and projected headcount beyond that anticipated in the 2020 LRDP would generate a modest increase in wastewater flow from campus as a result of greater use of restroom fixtures in UC Berkeley facilities; however, by decreasing overall water use, UC Berkeley has also decreased wastewater flow from campus.

The increase in UC Berkeley's existing and projected headcount would not require additional physical development beyond that planned for in the 2020 LRDP that could affect stormwater drainage facilities or generate excess energy demand for building operations, use energy wastefully or inefficiently, or require new steam or chilled water facilities.

While the increase in UC Berkeley's existing and projected headcount would generate a modest increase in solid waste because of additional people using trash receptacles, it is not expected that solid waste generation would increase overall, due to continued implementation of recycling measures. During implementation of the 2020 LRDP, UC Berkeley has reduced the amount of waste sent to landfills even with the increased campus headcount.

The increase in UC Berkeley's headcount would not result in net increases in water use, wastewater flow, or solid waste generation, with continued implementation of water efficiency and recycling measures. In addition, it would not require additional physical development beyond that planned for in the 2020 LRDP that would affect stormwater drainage facilities or demand greater use of energy, steam, or chilled water. Therefore, increased headcount would have less than significant impacts related to utilities and service systems and would fall within the analysis of Utilities and Services Systems in the 2020 LRDP EIR.

UTILITIES AND SERVICE SYSTEMS

WATER

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Exceed the capacity of existing and planned water entitlements and resources?	●	

The 2020 LRDP EIR found that implementation of the 2020 LRDP would increase water demand in the EBMUD service area by 424,600 gallons per day (gpd), representing an increase of 0.15 percent beyond EBMUD's predicted demand for 2020 (2020 LRDP EIR Vol 1, p. 4.13-5). Because the Upper Hearst Development would be within the overall development parameters of the 2020 LRDP program, it would not result in additional water demand in the EBMUD service area. The Upper Hearst Development would also meet EBMUD's requirements for water metering and conservation prior to receiving water from the agency. Water service to the proposed residential building would be metered in compliance with Senate Bill 7 (SB-7). In addition, Section 31 of EBMUD's Water Service Regulations would require installation of all applicable water-efficiency measures described in the regulation at the project sponsor's

expense before furnishing new or expanded water service. Consistent with Continuing Best Practice USS-2.1-d, specific water conservation measures have been included in the design of the Upper Hearst Development to reduce water consumption and wastewater generation. EBMUD has also requested that the proposed Project comply with the California Model Water Efficient Landscape Ordinance (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495); the recommendation has been forwarded to the design team, in order to further reduce the already less than significant impact to water supplies. The Upper Hearst Development would be consistent with the 2020 LRDP EIR's analysis and would have a less than significant impact related to the capacity of water entitlements and resources.

The 2020 LRDP EIR found that implementation of the 2020 LRDP in combination with other cumulative projects would increase demand for water, but not to the extent that would result in the need for new or altered facilities (2020 LRDP EIR Vol. 1, p. 4.13-27). As discussed above, the Upper Hearst Development would be within the overall development parameters of the 2020 LRDP program and therefore would not result in additional water demand in the EBMUD service area. As a result, the Project would not contribute to a cumulative impact related to water resources, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Require or result in the construction of new or expansion of existing water facilities, the construction of which could cause significant adverse effects?		●

Please see response to Water item 1, above. The Project would not require or result in the construction of new or expanded water facilities.

WASTEWATER

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Result in a determination by the wastewater treatment provider which serves or may serve the Project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	●	

The Upper Hearst Development would be served by the EBMUD Special District No. 1 (SD-1) Wastewater Treatment Plant, which has a current dry weather flow treatment capacity of 168 mgd. The 2020 LRDP EIR projected the increase in wastewater flow to this plant from buildout of the 2020 LRDP, based on demand factors for the gross square footage of new development and the number of new student beds (2020 LRDP EIR Vol 1, p. 4.13-11). Although operation of the Upper Hearst Development would generate wastewater, the proposed 37,000 square-foot academic building and up to 225 student beds would fit within the 2020 LRDP EIR's assumed development parameters for the entire 2020 LRDP program. Therefore, new wastewater flow would not be beyond levels anticipated in the 2020 LRDP EIR and would not require construction of additional wastewater collection facilities.

EBMUD anticipates that the Wastewater Treatment Plant has adequate capacity during dry weather to accommodate wastewater flows from the Upper Hearst Development, provided that wastewater generated by the development complies with the agency's Wastewater Control Ordinance; however, wastewater flows during storm events may be an issue due to ongoing problems caused by stormwater infiltration (Appendix A). The East Bay regional wastewater collection system experiences exceptionally high peak flows during storms from excessive inflow and infiltration through cracks and misconnections in public and private sewer lines (see Appendix A). EBMUD has historically operated three Wet Weather Facilities to provide treatment for high wet weather flows that exceed the treatment capacity of the Wastewater Treatment Plant. On January 14, 2009, as a result of Environmental Protection Agency's (EPA) and the State Water Resources Control Board's (SWRCB) reinterpretation of applicable law, the Regional Water Quality Control Board (RWQCB) issued an order prohibiting further discharges from EBMUD's Wet Weather Facilities. In addition, on July 22, 2009, a Stipulated Order for Preliminary Relief issued by EPA, SWRCB, and RWQCB became effective. This order requires EBMUD to perform work that will identify problem infiltration/inflow areas, begin to reduce infiltration/inflow through private sewer lateral improvements, and lay the groundwork for future efforts to eliminate discharges from the Wet Weather Facilities.

Stormwater infiltration into existing or new lateral sewer lines that would connect from the Project site to the sewer mains in La Loma Avenue and Hearst Avenue could potentially contribute to high wet weather flows that exceed allowable levels at the Wastewater Treatment Plant. To address potential impacts to wastewater treatment capacity during wet weather the following mitigation measure would be required:

MM-UTIL-1 Existing wastewater collection systems serving the Upper Hearst Development shall be rehabilitated or replaced to ensure that such systems are free from defects or disconnected from the sanitary sewer system. Any new or replacement wastewater collection system infrastructure required to serve the Upper Hearst Development, including sewer lateral lines, shall be constructed to prevent infiltration/inflow to the maximum extent feasible.

Almost the entire Project site is currently paved and impervious; thus, the vast majority of site runoff is conveyed directly to existing storm drains. The Upper Hearst Development would include bioretention planting areas designed to maintain existing peak stormwater flows from the Project site. In addition, the 2020 LRDP EIR notes that localized clusters of new development could exceed the capacity of individual sub-basins, and includes measures to minimize possible collection capacity impacts, including project-by-project analysis of sewer system capacity considerations (Continuing Best Practices USS-2.1-b and USS-2.1-d through USS-2.1-e). As further support of this effort, in May of 2005 the UC Berkeley Chancellor and the mayor of the City of Berkeley signed an agreement earmarking $200,000 annually in UC Berkeley funds to the City of Berkeley to support sewer and storm drain infrastructure projects.

Should it be determined that increases to sewer system collection capacity are required, any replacement/rehabilitation of existing sewer collection lines and construction of new sewer lateral lines would occur within an existing road (Hearst Avenue and La Loma Avenue) in a fully urbanized area. As such, though construction-related effects, such as disruption to traffic flows and construction noise, could occur, these would be temporary and would be addressed through standard measures, such as traffic control and adherence to timing restrictions in the City of Berkeley Noise Ordinance. Therefore, the

Upper Hearst Development's impact related to wastewater facilities would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

The 2020 LRDP EIR found that implementation of the 2020 LRDP in combination with other cumulative projects would increase the demand for wastewater and stormwater conveyance, and may result in the construction of new or altered facilities, but these are not anticipated to have significant cumulative environmental impacts (2020 LRDP EIR Vol. 1, p. 4-13-28). As discussed above, new wastewater flow from the Upper Hearst Development would not be beyond levels anticipated in the 2020 LRDP EIR and would not require construction of additional wastewater collection facilities. With implementation of Mitigation Measure UTIL-1, the Upper Hearst Development also would be constructed to prevent infiltration/inflow to the maximum extent feasible and would not substantially increase cumulative infiltration/inflow to EBMUD's wastewater collection facilities. Therefore, the Project would not considerably contribute to a significant cumulative impact related to wastewater facilities, consistent with the 2020 LRDP EIR's analysis.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Require or result in the construction of new or expansion of existing wastewater treatment facilities, the construction of which could cause significant adverse effects?	●	

See Utilities and Service Systems - Wastewater item 1.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
3. Exceed wastewater treatment requirements of the Regional Water Quality Control Board?		●

EBMUD regulates UC Berkeley's wastewater discharge to its treatment plant through a source control program designed to ensure compliance with its NPDES permit conditions. UC Berkeley is required to comply with conditions of EBMUD's Ordinance 311 and the Main Campus Wastewater Discharge Permit issued by EBMUD's Source Control Division and applicable to all campus laboratory, construction and municipal operations.

UC Berkeley's program has served as a model to others. The program's success at preventing pollution was recognized in 2003 when the campus was one of two honorees to be awarded EBMUD's Pollution Prevention Award for 'exemplary performance in complying with discharge requirements.'

The Upper Hearst Development would not be considered a new land use not previously analyzed in the 2020 LRDP EIR and would not require additional development above that anticipated for the overall 2020 LRDP program; thus, there is no expectation that operation of the Upper Hearst Development would significantly alter campus wastewater discharge or violate water quality standards. Discharge quantities from operation of the Upper Hearst Development would vary but are not expected to exceed the growth parameters assessed in the 2020 LRDP EIR, which found the potential impact on water quality standards and waste discharge requirements resulting from implementation of the 2020 LRDP to be less than

significant, given existing campus practices. (Best Practices HYD-1-a through HYD-1-d) Also, see Hydrology and Water Quality item 1.

STORMWATER

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Require or result in the construction of new or expansion of existing stormwater drainage facilities, the construction of which could cause significant adverse effects?		●

As described in Chapter 9, *Hydrology and Water Quality*, the Project site is almost entirely impervious, and the Upper Hearst Development would not increase the area of impervious surface on-site. The 2020 LRDP EIR requires that new projects be sited and designed so the aggregate effect of projects under the 2020 LRDP is no net increase in runoff over existing conditions (Continuing Best Practice HYD-4-e). Consistent with this best practice, the development would include bioretention facilities that ensure no net increase in runoff. Therefore, the Upper Hearst Development would not result in the construction of new or expanded stormwater drainage facilities, and this impact would be less than significant. See also Hydrology and Water Quality items 3 and 4.

SOLID WASTE

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Violate any applicable federal, state, and local statutes and regulations related to solid waste?		●

Although the Upper Hearst Development would generate solid waste for disposal at landfills, implementation of Continuing Best Practice USS-5.1 would require that UC Berkeley continues to implement a solid waste reduction and recycling program designed to reduce the total quantity of campus solid waste that is disposed of in landfills during implementation of the 2020 LRDP. Efforts to minimize UC Berkeley's solid waste generation have reduced the amount sent to landfills by approximately 33 percent from 2004 to 2016. Additionally, Mitigation Measure USS-5.2 in the 2020 LRDP EIR would require recycling or salvage of at least 50 percent of construction and demolition waste generated during construction of the proposed project. These measures would ensure that this impact would be within the scope of the 2020 LRDP EIR's analysis and less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Exceed the permitted capacity of a landfill that serves the project's solid waste disposal needs?		●

UC Berkeley is exempt from Alameda County requirements to dispose of solid waste in the County, and therefore selects landfill sites based on lowest cost. In accordance with The Regents-adopted Policy on Sustainable Practices and the policies of the 2020 LRDP, contractors working for UC Berkeley would be

required to report their solid waste diversion according to UC Berkeley's waste management reporting requirements. As discussed in Solid Waste item 1 above, the Upper Hearst Development would not generate additional solid waste beyond that anticipated in the 2020 LRDP EIR. Therefore, the impact related to exceeding the capacity of landfills would be within the scope of the 2020 LRDP EIR's analysis and less than significant (2020 LRDP EIR Vol 1, p. 4.13-21 and 4.13-22).

ENERGY

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Require or result in the construction of new or expansion of existing energy production and/or transmission facilities, the construction of which could cause significant adverse effects?		●

The 2020 LRDP EIR found that buildout of the 2020 LRDP would increase the use of electricity and natural gas, but would not result in the need for new or altered energy facilities (2020 LRDP EIR Vol 1, p. 4.13-25). Therefore, the 2020 LRDP EIR determined the energy use would have less than significant impacts.

While the Upper Hearst Development would generate demand for electricity, natural gas, and steam, it would not exceed the overall development parameters in the 2020 LRDP EIR. Therefore, its impacts related to operational energy demand would be within the scope of the 2020 LRDP EIR's analysis and less than significant. Construction of the Upper Hearst Development also may require upgrades to gas and electricity lines in order to provide adequate levels of service to the Project site. However, these upgrades would occur in already urbanized portions of the East Bay so no environmental impacts from construction would occur. Potential construction-related effects related to upgrades to service lines, such as disruption to traffic flows and construction noise, would be temporary and would be addressed through standard measures, such as traffic control and adherence to timing restrictions in the City of Berkeley Noise Ordinance. Therefore, the impact related to construction would be less than significant.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
2. Would the Project encourage the wasteful or inefficient use of energy?		●

The Upper Hearst Development would contribute to UC Berkeley continuing to exceed Title 24 energy conservation requirements for new buildings by 20 percent, and would incorporate energy efficient design elements, in accordance with existing policies and 2020 LRDP goals. (2020 LRDP EIR Vol 1, p. 4.13-26). Therefore, this impact would be less than significant.

STEAM AND CHILLED WATER

Would the Project:

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
1. Require or result in the construction of new or expansion of existing steam and/or chilled water facilities, the construction of which could cause significant adverse effects?		●

The 2020 LRDP EIR found that implementation of the 2020 LRDP could increase UC Berkeley's steam demand by up to 22,200 pounds per hour, which would be well within the campus's plant capacity of 353,000 pounds per hour (2020 LRDP EIR Vol 1, p. 4.13-18). While the Upper Hearst Development would generate demand for steam, such demand would not exceed the overall demand of the 2020 LRDP program. Therefore, steam demand from the Upper Hearst Development would be within the scope of the 2020 LRDP EIR's analysis and the Upper Hearst Development would have a less than significant impact.

SUMMARY OF UTILITIES AND SERVICE SYSTEMS ANALYSIS

The 2020 LRDP EIR concluded that projects implementing the 2020 LRDP, incorporating existing best practices and 2020 LRDP EIR mitigation measures, would not result in new significant utilities and service systems impacts (2020 LRDP EIR Vol 1, p. 4.13-5, 4.13-10 to 4.13-12, 4.13-15 to 4.13-16, 4.13-18, 4.13-21 to 4.13-22, 4.13-25 to 4.13-28). Because the proposed Upper Hearst Development would not require additional physical development beyond that anticipated in the 2020 LRDP EIR, the Project's impacts related to water use, stormwater facilities, solid waste, and energy and steam uses would be within the scope of the 2020 LRDP EIR's analysis and less than significant. Compliance with the 2009 RWQCB order prohibiting further discharges from EBMUD's Wet Weather Facilities would require implementation of mitigation to address potential impacts to wastewater treatment capacity during wet weather periods, resulting in a less than significant impact related to wastewater facilities.

17. MANDATORY FINDINGS OF SIGNIFICANCE

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	●	

The Project does not pose new concerns about the quality of the environment not analyzed in the 2020 LRDP EIR. Potential impacts of new construction and other 2020 LRDP activities upon fish, wildlife, plant or animal communities, special status species, or important examples of the major periods of California history or prehistory are examined at Section 4.3 of the 2020 LRDP EIR, Vol 1, Biological Resources, and Section 4.4 of the 2020 LRDP EIR, Vol 1, Cultural Resources. No significant and unavoidable impacts on biological resources are anticipated to result from implementation of the 2020 LRDP.

As discussed in Chapter 5, *Cultural Resources*, the proposed Upper Hearst Development would degrade the integrity of setting and feeling of historical resources adjacent to the Project site, which represent important examples of architectural history in California. Despite implementation of feasible mitigation to improve the proposed buildings' compatibility of design with nearby historic buildings, the impact on historic resources would be significant and unavoidable. However, this impact would be within the scope of Impact CUL-3 in the 2020 LRDP EIR, which found projects developed to further UC Berkeley's educational mission could cause substantial adverse changes in the significance of historical resources, resulting in a significant and unavoidable impact. Furthermore, the Project would not eliminate important examples of major periods of California history.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
Does the Project have impacts that are individually limited but cumulatively considerable? ('Cumulatively considerable' means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other projects, and the effects of probable future projects)?	●	

Cumulative impacts related to implementing the 2020 LRDP are analyzed in the 2020 LRDP EIR beginning at the following pages: Aesthetics, p. 4.1-21; Air Quality, p. 4.2-29; Biological Resources, p. 4.3-33; Cultural Resources, p. 4.4-60; Geology, Seismicity and Soils, p. 4.5-22; Hazardous Materials, p. 4.6-32; Hydrology and Water Quality, p. 4.7-31; Land Use, p. 4.8-19; Noise, p. 4.9-23; Population and Housing, p. 4.10-17; Public Services, p. 4.11-29; Transportation and Traffic, p. 4.12-59; Utilities and Service Systems, p. 4.13-27. The 2020 LRDP EIR found significant cumulative impacts on the traffic network due to vehicle trips generated by implementation of the 2020 LRDP (see 2020 LRDP EIR Vol 1, p. 4.12-59 of the); significant cumulative noise impacts from construction noise exceedances of local standards (see 2020 LRDP EIR Vol 1, p. 4.9-24); potential significant cumulative impacts upon the resource base of historical or archaeological resources (see 2020 LRDP EIR Vol 1, p. 4.4-61); and a potential continuing cumulative exceedance of toxic air contaminant emissions (see 2020 LRDP EIR Vol 1, p. 4.2-34).

Appendix I to this SEIR provides a list of major cumulative projects that are under consideration, approved, or under construction on the UC Berkeley campus and in off-campus areas near the Project site. Cumulative projects near the Project site include, but are not limited to, the following:

- Demolition of the 247,000 square-foot Tolman Hall near Hearst Avenue by Arch Street
- The potential construction of a new UC Berkeley residence hall or apartment building with 1,000 to 3,000 student beds on the Oxford Tract
- Construction of the 77,000 square-foot Integrative Genomics Building at LBNL
- Construction of a 142-unit residential building with transitional housing and support services at 2012 Berkeley Way
- Construction of 34 affordable units at 1601 Oxford Street associated with the All Souls Episcopal Parish

Cumulative projects would add housing units, academic and support space, and commercial space, generating new vehicle trips. However, it is estimated that the Project would reduce vehicle trips to and from the Project site, by reducing parking availability in the Upper Hearst parking structure.

Furthermore, as discussed in this SEIR's analysis of traffic impacts, trip generation associated with the UC Berkeley campus is currently less than baseline conditions for the 2001-2002 school year as analyzed in the 2020 LRDP EIR and is projected to remain below baseline conditions through the 2022-2023 school year. Therefore, the Project would not contribute to the 2020 LRDP's significant and unavoidable cumulative impacts on the traffic network.

Demolition and construction activity for cumulative projects, including the proposed Upper Hearst Development, would generate a temporary increase in ambient noise. However, construction noise is a localized issue, and other cumulative project sites are not located close enough to the Project site to result in substantially greater cumulative exposure to construction noise in any given location. As noted in the Noise analysis, the Upper Hearst Development would not introduce a more adverse impact from construction noise than anticipated in the 2020 LRDP EIR, after implementation of continuing best practices and mitigation measures from the 2020 LRDP EIR. Increased headcount would not involve additional development beyond that planned for in the 2020 LRDP that could generate construction noise. Therefore, construction noise from the Project would not be cumulatively considerable.

The 2020 LRDP EIR determined that cumulative development at UC Berkeley and LBNL, in combination with other cumulative projects, could have a combined adverse effect on the historical resource base, resulting in a significant and unavoidable impact (2020 LRDP EIR Vol 1, p. 4.4-61). As discussed in Chapter 5, *Cultural Resources*, the Upper Hearst Development would degrade the integrity of feeling and setting of historical resources adjacent to the Project site. Therefore, the Project would contribute to a significant and unavoidable cumulative impact on historical resources. Implementation of Mitigation Measure CUL-1, however, would reduce this impact to the extent feasible through the inclusion of exterior materials in building design that are more compatible with nearby historical resources.

The 2020 LRDP EIR found that cumulative projects would generate new TAC emissions, resulting in a significant and unavoidable air quality impact (2020 LRDP EIR Vol 1, p. 4.2-33 to 4.2-34). The construction of current cumulative UC Berkeley and LBNL projects that would involve TAC emissions during building operations, such as from emergency generators, would contribute to this impact. By increasing the number of people exposed to air pollution, the Upper Hearst Development may incrementally contribute to this significant cumulative impact identified in the 2020 LRDP EIR.

The Upper Hearst Development would introduce two new significant and unavoidable impacts at the project level that were not anticipated in the 2020 LRDP EIR: degradation of visual character and quality, and land use incompatibility. The 2020 LRDP EIR found that new development could degrade visual character and quality, but design provisions of the 2020 LRDP would ensure the contribution of projects under the 2020 LRDP would not be cumulatively considerable (2020 LRDP EIR Vol 1, p. 4.1-22). As discussed in Chapter 1, *Aesthetics*, the Upper Hearst Development would introduce a project-level significant impact on visual character and quality, as a result of incompatibility in scale, massing, and design between the proposed buildings and the surrounding neighborhood. However, other cumulative projects are not located in this Northside Berkeley neighborhood to the north of Hearst Avenue and east of Oxford Street and would not affect its visual setting. It is also assumed that other cumulative projects would be consistent with applicable design standards. Therefore, the Project would not contribute to a significant cumulative impact on visual character or quality as identified in the 2020 LRDP EIR.

Based on the 2020 LRDP EIR's land use analysis, the 2020 LRDP would have a less than significant cumulative impact related to compatibility with land uses adjacent to new development (2020 LRDP EIR Vol 1, p. 4.8-20 to 4.8-21). In general, development under the 2020 LRDP would be compatible with adjacent general plan designations and thus with existing and future land uses. As discussed in Chapter 10, *Land Use*, the proposed Upper Hearst Development would be inconsistent with 2020 LRDP policy to minimize incompatibilities with local zoning standards for height and setbacks. In addition, proposed buildings' scale, massing, and exterior materials would be incompatible with those of historic buildings in the surrounding residential neighborhood. Nonetheless, this project-level land use incompatibility would not alter the 2020 LRDP EIR's finding that new development under the 2020 LRDP would generally be compatible with adjacent land uses. Therefore, the Project would not contribute to a significant cumulative impact related to land use.

	Further Analysis Required	2020 LRDP EIR Analysis Sufficient
Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	●	

Potential adverse effects on human beings, directly or indirectly, are addressed in the 2020 LRDP EIR sections on Air Quality; Geology, Seismicity and Soils; Hydrology; Noise; Public Services – Fire and Emergency Protection; Transportation and Traffic. Implementation of the 2020 LRDP, including implementation of best practices and mitigation measures, is anticipated to reduce adverse effects on human beings. As the Project would be within the scope of the 2020 LRDP EIR's analysis of these issue areas, it would not cause substantial adverse effects on human beings after implementation of best practices and mitigation measures. See the 2020 LRDP EIR Vol 1, as revised by Vol 3a, within each topic area.

7. OTHER CEQA REQUIRED DISCUSSIONS

This section discusses growth inducing impacts, irreversible environmental impacts, and energy impacts that could be caused by the Project.

GROWTH-INDUCING EFFECTS

Section 15126.2(d) of the CEQA Guidelines requires a discussion of a proposed project's potential to induce growth by, for example, fostering economic or population growth, or removing an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. A project's growth-inducing potential is therefore considered significant if growth induced by the project could result in significant physical effects in one or more environmental issue areas.

The proposed Upper Hearst Development would foster population growth by introducing a residential building with up to 150 housing units and an academic building to serve GSPP's expanding graduate program. The academic building would expand the program's overall capacity to serve an additional five staff members and 30 students, on average, by the end of the 2023 school year. This growth on the Project site would incrementally contribute to a projected increase in campus headcount through the 2022-2023 school year. As discussed under Chapter 12, *Population and Housing*, in Section 6, *Environmental Evaluation*, it is estimated that by spring 2023 campus headcount would increase by 21.1 percent beyond the 2020 LRDP's projections for the year 2020. The primary driver of increased headcount would be an increase in student enrollment.

Although projected campus headcount would exceed the 2020 LRDP's projections, it is anticipated that this population growth would not induce physical development beyond that planned for in the 2020 LRDP. As discussed in Section 4, *Relationship to 2020 LRDP*, the 2020 LRDP anticipated over 2.2 million net new gross square feet of development to the year 2020; however, only 43.4 percent of that anticipated floor area has been constructed or is under construction. Similarly, UC Berkeley has ample remaining capacity under the 2020 LRDP's development parameters for student beds, having added 1,119 of the anticipated 2,600 new beds as of the end of 2018. Therefore, it is anticipated that physical development to accommodate an increasing population of students, faculty, and staff would not exceed the development parameters assumed in the 2020 LRDP, and would not result in additional environmental impacts beyond those evaluated in the 2020 LRDP EIR. Section 6, *Environmental Evaluation*, also analyzes the environmental impacts of population growth in itself and finds that they would not be more severe than identified in the 2020 LRDP EIR for the 2020 LRDP program as a whole.

REMOVAL OF OBSTACLES TO GROWTH

The Project site is located in an urbanized area that is fully served by existing infrastructure. As discussed under Chapter 9, *Hydrology and Water Quality*, and Chapter 16, *Utilities and Service Systems*, in Section 6, *Environmental Evaluation*, the Upper Hearst Development would not require a major expansion of public facilities such as wastewater treatment plants and stormwater infrastructure beyond that analyzed by the 2020 LRDP EIR. In the future, with or without the Project, minor improvements to water, sewer, and circulation systems and drainage connection infrastructure could be needed. No new or

widened/expanded roads would be required. Therefore, implementation of the Project would not remove additional obstacles to growth.

ENERGY USE AND CONSERVATION

Public Resources Code Section 21100(b)(2) and Appendix F of the CEQA Guidelines require an EIR to discuss the potential for impacts related to energy consumption and/or conservation. A project may have the potential to cause such impacts if it would result in inefficient, wasteful, or unnecessary consumption of energy, including electricity, natural gas, or transportation fuel supplies and/or resources. This section evaluates the anticipated energy demand (including fuel consumption) by the Upper Hearst Development. Energy demand includes natural gas, electricity, and fuel consumption during construction and operation.

California is one of the lowest per capita energy users in the United States, ranked 48th in the nation, due to its energy efficiency programs and mild climate (U.S. Energy Information Administration [EIA] 2018a). California generated 206,336 gigawatt-hours (GWh) of electricity in 2017 (California Energy Commission [CEC] 2018) and used 2,110,829 million cubic feet (MCF) of natural gas in 2017, of which 431,005 MCF were consumed by residential users (EIA 2018b). Additionally, in 2015, the most recent year of data provided by the EIA, California's transportation sector consumed 1,714.4 trillion Btu of motor gasoline in (EIA 2018c). The single largest end-use sector for energy consumption in California is transportation (40 percent), followed by industry (24 percent), commercial (19 percent), and residential (18 percent) (EIA 2018a).

The 2020 LRDP EIR determined that implementation of the 2020 LRDP would increase the use of electricity and natural gas but would not result in the need for new or altered energy facilities. Table 20 estimates electricity and natural gas demand under buildout of the 2020 LRDP development program, in comparison to annual statewide energy use.

Table 20:
2020 LRDP Projected Energy Use Relative to Statewide Energy Use

Form of Energy	Units	Annual LRDP-Related Energy Use	Annual Statewide Energy Use	Project Percent of Statewide Energy Use
Electricity	Megawatt hours	57,202[1]	288,613,480[2]	<0.01%
Natural Gas	Million British thermal units	163,200[1]	1,256,804,492[3]	<0.01%

[1] *Tables 4.13-3 and 4.13-4 in the 2020 LRDP EIR Vol 1*

[2] *CEC 2017a*

[3] *CEC 2017b*

As shown in Table 20, additional energy consumption under buildout of the 2020 LRDP would represent less than 0.01 percent of statewide annual demand for electricity and natural gas.

The Upper Hearst Development would involve energy use during its construction and operational phases. Because it would be within the development parameters of the 2020 LRDP for new academic space and student beds, the Upper Hearst Development would not result in additional energy use than anticipated in the 2020 LRDP EIR. Furthermore, as discussed under Chapter 7, *Greenhouse Gas Emissions*,

in Section 6, *Environmental Evaluation*, UC Berkeley is required to implement the UC's Carbon Neutrality Initiative, which would aggressively improve energy efficiency in buildings and increase utilization of renewable energy sources.

The 2020 LRDP EIR did not evaluate the energy impacts of gasoline use in transportation. However, as discussed in Chapter 14, *Transportation and Traffic*, the proposed Project would result in only approximately 150 net new daily trips. The SEIR's traffic analysis projects that, even with the adjusted campus headcount baseline, vehicle trips associated with people on campus would decrease in the 2022-2023 school year relative to trips in the 2001-2002 school year as presented in the 2020 LRDP EIR (Appendix G). As a result, it is expected that gasoline use would not increase beyond conditions analyzed in the 2020 LRDP EIR.

CEQA GUIDELINES APPENDIX F REQUIREMENTS AND ENERGY CONSERVATION STANDARDS

Appendix F of the CEQA Guidelines requires inclusion in an EIR of relevant information that addresses "potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy" (Public Resources Code Section 21100[b][3]). The following discussion addresses direct energy impacts of the Project as framed in Appendix F of the CEQA Guidelines by evaluating whether the Project would result in the wasteful or inefficient consumption of energy or the potential need for new energy-related infrastructure, the construction or operation of which would have significant impacts.

1. Would the Project result in the wasteful and inefficient use of non-renewable resources during construction and operation of the project?

As discussed above, UC Berkeley is required to implement UC's Carbon Neutrality Initiative, which would aggressively improve energy efficiency in buildings and increase utilization of renewable energy sources. The Upper Hearst Development also would be built to achieve a minimum LEED Silver rating and would target a Gold rating for new construction. Therefore, as determined in Chapter 16, *Utilities and Service Systems*, in Section 6, *Environmental Evaluation*, the Upper Hearst Development would not result in the wasteful and inefficient use of non-renewable resources.

2. Would the Project result in the need for new systems or substantial alterations to electrical, natural gas, or communication systems infrastructure, the construction or operation of which would have significant impacts?

As discussed in Chapter 16, *Utilities and Service Systems*, in Section 6, *Environmental Evaluation*, the Upper Hearst Development would not require the construction of additional physical infrastructure than anticipated in the 2020 LRDP EIR.

CUMULATIVE IMPACTS

The Project, in combination with approved, pending, and proposed development in the area as listed in Appendix I, would contribute incrementally to energy resource demand and conservation. Future development would have the cumulative effect of increasing local and regional energy demands, resulting in potential considerable impacts to energy conservation. However, discretionary actions requiring agency approval are required to comply with local, regional, state, and federal policies

designed to reduce wasteful energy consumption, and improve overall energy conservation and sustainability. For instance, all local projects involving the development of new buildings must be designed to conform to CALGreen and 2013 California Energy Code, and all UC Berkeley projects must be designed to conform to requirements in the UC Sustainable Practice Policy, such as outperforming Title 24 energy efficiency standards by at least 20 percent. Further, these projects are/would be operated and maintained by UC Berkeley and private utility companies, such as PG&E, which plan for anticipated growth. Electric and natural gas services are provided based on demand from consumers and expanded as needed to meet demand, consistent with applicable local, state, and federal regulations. Therefore, it is not anticipated that the Project contribution to cumulative impacts generated with projects provided in Appendix I would result in a significantly considerable wasteful use of energy resources, such that the Project, and other cumulative projects, would have a cumulative effect on energy conservation. Cumulative impacts would therefore be less than significant.

8. ALTERNATIVES

CEQA Guidelines Section 15126.6(a) states that "[a]n EIR shall 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." CEQA Guidelines Section 15126.6(e) further requires that an alternative be included that describes what would reasonably be expected to occur on the Project site in the foreseeable future if the proposed development were not approved, based on current plans and consistent with available infrastructure and community services. This is considered to be the "No Project Alternative."

Consistent with CEQA, the alternatives selected for analysis here would reduce or eliminate one or more of the Project's identified environmental impacts while meeting most of its basic objectives. The following four alternatives are evaluated in this SEIR:

- Alternative 1: No Project
- Alternative 2: Off-Site Lease Agreement
- Alternative 3: Academic Building Only
- Alternative 4: Reduced Scale

Table 21 compares the primary features of the proposed Project to those of each alternative.

Table 21:
Comparison of Features of Proposed Project and Alternatives

		Alternative			
Feature	**Proposed Project**	**No Project**	**Off-site Lease Agreement**	**Academic Building Only**	**Reduced Scale**
Parking supply on-site	200 spaces	407 spaces	407 spaces	407 spaces	≤200 spaces
Demolition	1) Upper Hearst parking structure 2) Ridge Lot	None	None	1) Ridge Lot	1) Upper Hearst parking structure 2) Ridge Lot
New structures					
Academic building	37,000 sf	None	None	37,000 sf	25,000 sf
Residential building	Up t o 150 units	None	None	None	Up to 150 units
Parking garage	New Upper Hearst parking structure	None	None	None	New Upper Hearst parking structure
Maximum building height	Up to six stories	N/A	N/A	Two stories	Four stories

Source: UC Berkeley, January 2019

NO PROJECT ALTERNATIVE

The No Project Alternative assumes that existing conditions would continue. None of the Project Site development components described in Section 3.5, *Project Description*, would be approved, and the existing Upper Hearst parking structure and surface Ridge Lot would be maintained on the Project site as they currently exist. UC Berkeley would not make changes to the existing environment.

The No Project Alternative would not result in contributions to the impacts studied in the 2020 LRDP EIR as identified in this SEIR, nor would it result in any of the proposed Project's impacts that would be more severe than identified in the 2020 LRDP EIR, with regard to aesthetics and land use incompatibility. However, the No Project Alternative would not achieve any of the objectives of the proposed Project.

OFF-SITE LEASE AGREEMENT ALTERNATIVE

Under the Off-site Lease Agreement Alternative, GSPP would meet its need for additional academic capacity for GSPP by leasing space in existing buildings on or near the UC Berkeley campus, instead of constructing the proposed Upper Hearst Development. The Project site would remain in its current state, with the existing Upper Hearst parking structure and Ridge surface parking lot. Although UC Berkeley has not identified specific opportunity sites that are available for leasing, it is assumed that physical space of equal size to the proposed 37,000 square-foot academic building would be available to accommodate an expansion of GSPP's academic facilities. This alternative would not involve the construction or leasing of additional residential space for faculty or students.

This alternative would meet Project objectives to improve academic facilities, maintain as much parking as possible on the Project site, maintain the historic character and setting around the Project site, and accommodate increased student enrollment. It would not meet objectives to provide housing, transform underutilized University-owned parcels, and design and build new facilities that are compatible with their surroundings. Although the alternative would meet the objective of maximizing retention of parking on-site, it would not meet the associated objective of refurbishing the Upper Hearst parking structure. In addition, leased space may be distant from the existing GSPP buildings, which would not meet the objective to promote compact and clustered development.

Aesthetics. By avoiding new development on the Project site, the Off-site Lease Agreement Alternative would not involve the removal of character-defining features of the historic Beta Theta Pi house, or the construction of new buildings that could be visually incompatible with the surrounding neighborhood. No off-site construction that could adversely affect aesthetics in other locations would occur. Therefore, whereas the proposed Project would introduce a significant and unavoidable impact to visual character and quality, this alternative would a have less than significant impact, which would be consistent with the 2020 LRDP EIR's analysis of aesthetics.

Cultural Resources. As discussed above, this alternative would avoid the loss of character-defining features at the historic Beta Theta Pi house and the introduction of new buildings that could be incompatible with the Project site's setting. By preserving the Project site in its existing conditions, the alternative would not degrade the setting of adjacent historical resources. No off-site construction that could impair other historical resources would occur. Therefore, while the proposed Project would have a significant and unavoidable impact on historical resources in the interest of furthering UC Berkeley's educational mission, this alternative would add a similar amount of academic space while having a less

than significant impact on historical resources. This less than significant impact would be within the scope of the 2020 LRDP EIR's analysis of cultural resources.

Land Use. An off-site lease agreement for expanded academic facilities would not involve new development that could conflict with the 2020 LRDP policy related to the City of Berkeley's zoning standards for building height and setbacks or be incompatible with surrounding land uses. It is assumed that leased academic space would be located on one site, or multiple sites, in the City of Berkeley where such use is allowed under existing zoning. Therefore, this alternative would have a less than significant impact related to land use incompatibility, and would avoid the proposed Project's new significant and unavoidable impact resulting from the incompatibility of new development with 2020 LRDP policy related to consistency with City zoning and surrounding land uses. This impact would be within the scope of the 2020 LRDP EIR's analysis of land use impacts.

Noise. The leasing of academic space in existing facilities would not involve construction activity that would temporarily increase noise levels near sensitive residences. Whereas the proposed Upper Hearst Development would have a significant and unavoidable impact from construction noise, consistent with the 2020 LRDP EIR's analysis, this alternative would have a less than significant impact.

Utilities. The Off-site Lease Agreement Alternative would involve leasing of academic space in existing facilities. It is assumed that GSPP would replace previous tenants in these facilities and therefore would not generate additional demand on utilities and services beyond baseline conditions. Because no new development affecting stormwater facilities would occur, Mitigation Measure UTIL-1 to prevent infiltration and inflow to stormwater pipes would not apply to this alternative. Similar to the proposed Project, utility impacts would be less than significant and within the scope of the 2020 LRDP EIR's analysis.

Summary. The Off-site Lease Agreement Alternative would avoid the proposed Project's new significant and unavoidable impacts on aesthetics and land use consistency. It would also avoid the proposed Project's significant and unavoidable impacts related to historical resources and construction noise that are within the scope of the 2020 LRDP EIR's analysis. Therefore, this alternative would reduce the Project's significant impacts to a less-than-significant level.

ACADEMIC BUILDING ONLY ALTERNATIVE

Similar to the proposed Project, the Academic Building Only Alternative would involve construction of an academic building on the Project site. While the proposed academic building would be located on the southwestern portion of the site, adjacent to the Beta Theta Pi house, this alternative would place the academic building on the northern portion of the site, where it would replace the Ridge surface parking lot, which is roughly 15,000 square feet. No residential building would be constructed. By relocating the new academic building and not constructing a residential building, UC Berkeley would retain the existing Upper Heart parking structure. The new academic building also would be reduced to two stories in height, but it would have a similar floor area to the proposed Project (37,000 square feet), by occupying a larger building footprint.

This alternative would meet most of the Project objectives. By adding an equivalent amount of academic space to that proposed in the Upper Hearst Development, on a site next to the existing GSPP buildings,

the alternative would meet objectives to enhance academics and transform underutilized University-owned parcels by promoting compact and clustered development. Retaining the Upper Hearst parking structure would meet the objective to keep as much parking as possible on-site to a greater extent than would the proposed Project. By minimizing the scale of development on-site and its proximity to the historic Beta Theta Pi house, this alternative also would better meet objectives to maintain the aesthetic and historic character of the surrounding neighborhood. However, it would not meet objectives to provide needed housing.

Aesthetics. This alternative would reduce visual changes to the Project site compared to the proposed Project. While the proposed Upper Hearst Development would involve construction of up to a six-story residential building and a four-story academic building, this alternative would add only a two-story academic building. The existing Upper Hearst parking structure also would be retained instead of demolished. The scale of new development would be compatible with neighboring residential buildings and the Beta Theta Pi house, which are at least two stories in height. This alternative also would preserve character-defining features in the front yard of the historic Beta Theta Pi house, including a stream-rock retaining wall and brick pathways. The palette of exterior materials on the academic building could be incompatible with the wood-shingled and brick cladding of adjacent buildings designed in the First Bay Tradition of architecture. Implementation of Mitigation Measure CUL-1 would require consultation with an architectural historian to consider a more compatible palette of exterior materials, but would not necessarily result in a building design that integrates such materials. Therefore, this alternative would substantially reduce the severity of the Project's significant and unavoidable impact on visual character and quality, and could potentially reduce the impact to a less-than-significant level if the building design is compatible with adjacent historical resources.

Cultural Resources. The Academic Building Only Alternative would avoid a direct impact on historical resources by relocating the new academic building away from the historic Beta Theta Pi house. In this location, an accessible pathway to the academic building could be constructed without demolishing character-defining features of the historical resource, including a stream-rock retaining wall and brick pathways. The two-story academic building also would be compatible with the scale of adjacent historical resources, such as the two-story Beta Theta Pi house and the four-story Cloyne Court Student Cooperative. As discussed above, the academic building's exterior materials could be incompatible with adjacent historical resources, but implementation of Mitigation Measure CUL-1 has the potential to resolve this issue. Therefore, this alternative may be compliant with applicable *Secretary's Standards* to protect the integrity of historical resources. The Academic Building Only Alternative would substantially reduce the severity of the Project's significant and unavoidable impact on historical resources, and could potentially reduce this impact to a less-than-significant level if the building design is compatible with adjacent historical resources. Similar to the proposed Project, this alternative would not introduce new potential impacts on historical resources beyond those already assessed in the 2020 LRDP EIR.

Land Use. The new two-story academic building would not exceed the City of Berkeley R-3 zoning district's height limit of three stories. It is assumed that UC Berkeley would have adequate space on the Project site to design this building with setbacks that conform to the R-3 zone's standards. As discussed above, the new building also would be compatible with the scale of surrounding development. Although the building's design could be visually incompatible with that of surrounding buildings, this in itself would not represent a substantial land use incompatibility. Therefore, this alternative would reduce

the Project's significant and unavoidable impact related to consistency with 2020 LRDP policy regarding land use incompatibility to a less-than-significant level, consistent with the 2020 LRDP EIR's analysis.

Noise. By substantially reducing the scale of demolition and new construction, this alternative would reduce the duration of noise-generating construction activities. However, adjacent noise-sensitive receptors would still be exposed to high levels of construction noise. Implementation of Continuing Best Practices NOI-4-a, NOI-4-b, and 2020 LRDP Mitigation Measure NOI-4 would control construction-related noise to the extent that is reasonable and feasible. Similar to the proposed Upper Hearst Development, even after implementation of these continuing best practices and mitigation measures, the noise impact from construction would be significant and unavoidable (2020 LRDP EIR Vol 1, p. 4.9-16 to 4.9-25). However, similar to the proposed Project, this alternative would not introduce new potential noise impacts beyond those already assessed in the 2020 LRDP EIR.

Utilities. Because this alternative would not include construction of a residential building and would reduce the scale of the new academic building, it would result in less demand on utility infrastructure than would the Upper Hearst Development. Similar to the proposed Upper Hearst Development, the new academic and residential buildings would not exceed the overall development parameters of the 2020 LRDP program. Therefore, this alternative would not result in additional demand on water, energy, or steam infrastructure than anticipated in the 2020 LRDP EIR. Similar to the proposed development, Mitigation Measure UTIL-1 would be required to prevent infiltration and inflow to stormwater pipes to the maximum extent feasible. With implementation of this measure, the new building would not contribute to excessive infiltration and inflow to EBMUD's sanitary sewer system, and would have a less than significant impact related to wastewater infrastructure. In addition, similar to the proposed Upper Hearst Development, this alternative would not result in a net increase in stormwater flow from the Project site, with adherence to continuing best practices in 2020 LRDP EIR. As for the Project, overall utility impacts would be less than significant with mitigation incorporated, and within the scope of the 2020 LRDP EIR's analysis.

Summary. The Academic Building Only Alternative would substantially reduce the proposed Project's significant and unavoidable impacts on visual character and quality and on historical resources, and could potentially reduce these impacts to a less-than-significant level with implementation of Mitigation Measure CUL-1. Similar to the Project, the impact on historical resources would not be beyond that anticipated in the 2020 LRDP EIR. This alternative also would reduce to a less-than-significant level the Project's significant and unavoidable impact related to land use incompatibility. In addition, impacts related to utility infrastructure would remain less than significant with mitigation to minimize infiltration and inflow to the sanitary sewer system.

REDUCED SCALE ALTERNATIVE

The Reduced Scale Alternative would reduce the proposed scale of the new academic and residential buildings, thereby reducing the proposed Project's impacts related to compatibility with the surrounding development, including adjacent historic properties. Under this alternative, the new academic building would have a reduced floor area of approximately 25,000 square feet, compared to 37,000 square feet under the proposed Project, while the residential building would have 120 dwelling units (30 fewer than the proposed Project). By reducing the floor area of new buildings, the academic building's height would be reduced from four to three stories, while the residential building would be reduced from six to four

stories. The new buildings would have increased setbacks from streets relative to the proposed Project. It is assumed that these setbacks would be consistent with the City's R-3 zone standards. As for the proposed development, it is assumed that the Upper Hearst parking structure would be demolished to accommodate the new buildings. To accommodate 120 dwelling units in the residential building while reducing its scale, this alternative would involve the removal of more parking spaces in the Upper Hearst parking structure than proposed for the Project.

This alternative would meet most of the Project objectives, but to a lesser extent than would the proposed Project. By reducing the scale of the new academic building, the alternative would not fully meet objectives related to fulfilling the academic needs of the GSPP program. Similarly, if the residential building included fewer residential units than proposed, it would not fully meet objectives to provide housing on-site to serve current demand and to address the shortage of campus housing. By reducing the scale of development, the alternative would meet the objective of accommodating increased GSPP enrollment to a lesser extent than would the proposed Project. The potential removal of additional parking spaces also would not meet the objective of maintaining as much parking as possible on-site. However, the Reduced Scale Alternative would better meet objectives to maintain the character and setting of surrounding historic buildings and to build facilities that are compatible with the surrounding neighborhood.

Aesthetics. Whereas the proposed Upper Hearst Development would involve construction of a residential building up to six stories above grade level, the Reduced Scale Alternative would include a residential building up to four stories above grade level. A four-story residential building would be more compatible with the scale of two adjacent four-story buildings: the Foothill Student Housing complex, located across La Loma Avenue to the east, and the Cloyne Court Student Cooperative, located west and north of the Project site. Greater setbacks also would reduce the buildings' massing from the perspective of adjacent streets. This reduction in scale and massing would improve the visual compatibility of the alternative with the surrounding neighborhood. Similar to the proposed Upper Hearst Development, the primary palette of exterior materials used in the new buildings would consist of glass, concrete, and metal. This design would contrast with the historic wood-shingled and brick cladding of adjacent buildings designed in the First Bay Tradition of architecture. Furthermore, similar to the proposed development, this alternative would entail removal of a stream-rock retaining wall and brick pathways in the front yard of the historic Beta Theta Pi house adjacent to the Project site, in order to accommodate ADA-accessible ramps to the new academic building. The removal of these character-defining features at a historic building would degrade the visual environment. Therefore, despite this alternative's improved compatibility of scale with the surrounding neighborhood, it would also have a significant and unavoidable impact on visual character and quality, which is beyond that anticipated in the 2020 LRDP EIR.

Cultural Resources. As discussed above, this alternative would improve the compatibility of scale and massing between the new residential building and the surrounding neighborhood, including the historic Cloyne Court Student Cooperative. However, the new buildings' palette of exterior materials, with glass, concrete, and metal predominating, would still be incompatible with the wooden and brick exteriors of adjacent historic buildings styled in the First Bay Tradition of architecture. Implementation of Mitigation Measure CUL-1 would require consultation with a historic architect and consideration of the architect's recommendations for a more compatible palette of exterior materials, but would not necessarily result in a building design that integrates such materials. Moreover, similar to the proposed

development, this alternative would involve the removal of character-defining front yard features at the Beta Theta Pi house, degrading its integrity of setting and feeling. The proposed ADA-accessible ramps replacing these features, to serve the new academic building, also would envelop the Beta Theta Pi house, compromising its appearance as a stand-alone historical building. Retention of the Beta Theta Pi house's historic site design and plan, including the stream-rock retaining wall, brick walkway, and most of the front lawn, would be necessary to maintain consistency with the *Secretary's Standards*. Therefore, although lower scale of new buildings would improve their compatibility with the scale of adjacent historical resources, the Reduced Scale Alternative would still be non-compliant with applicable *Secretary's Standards* to protect the integrity of feeling and setting for historical resources. Similar to the proposed Upper Hearst Development, this alternative would have a significant and unavoidable impact on historical resources, but one that is within the scope of the 2020 LRDP EIR's analysis for new development that furthers UC Berkeley's educational mission.

Land Use. While the proposed Upper Hearst Development would not meet the City's R-3 zoning standards for building setbacks, the increased setbacks under the Reduced Scale Alternative would be consistent with City standards. However, similar to the proposed Upper Hearst Development, the new buildings under the Reduced Scale Alternative would not meet the City's R-3 zoning standards with respect to building height and density. Although the new academic building could potentially meet the R-3 zone's maximum height of three stories, the new four-story residential building would exceed this height standard. In addition, as detailed above, the new buildings' palette of exterior materials would be visually incompatible with the character of the surrounding neighborhood. Therefore, although this alternative would reduce the proposed development's incompatibility with surrounding land uses in terms of the scale of buildings, it would still have a new significant and unavoidable impact related to consistency with 2020 LRDP policy regarding land use incompatibility. This impact would exceed the impact anticipated in the 2020 LRDP EIR.

Noise. This alternative would incrementally reduce the scale and duration of construction with respect to the proposed Upper Hearst Development. However, construction activity would still occur in close proximity to adjacent noise-sensitive residences. Implementation of Continuing Best Practices NOI-4-a, NOI-4-b, and 2020 LRDP Mitigation Measure NOI-4 would control construction-related noise to the extent that is reasonable and feasible. Similar to the proposed Upper Hearst Development, even after implementation of these continuing best practices and mitigation measures, the noise impact from construction would be significant and unavoidable (2020 LRDP EIR Vol 1, p. 4.9-16 to 4.9-25). However, the Reduced Scale Alternative would not introduce any new potential noise impacts beyond those already assessed in the 2020 LRDP EIR.

Utilities. Because the Reduced Scale Alternative would introduce new academic and residential buildings with less overall floor area than in the proposed Upper Hearst Development, it would generate incrementally less demand on utilities. Similar to the proposed development, the new buildings would not exceed the overall development parameters of the 2020 LRDP program. Therefore, this alternative would not result in additional demand on water, energy, or steam infrastructure than anticipated in the 2020 LRDP EIR. Also similar to the proposed development, Mitigation Measure UTIL-1 would be required to prevent infiltration and inflow to stormwater pipes to the maximum extent feasible. With implementation of this measure, the new buildings would not contribute to excessive infiltration and inflow to EBMUD's sanitary sewer system, and would have a less than significant impact related to wastewater infrastructure. In addition, similar to the proposed Upper Hearst Development, this

alternative would not result in a net increase in stormwater flow from the Project site, with adherence to continuing best practices in the 2020 LRDP EIR. As for the Project, overall utility impacts would be less than significant with mitigation incorporated, and within the scope of the 2020 LRDP EIR's analysis.

Summary. Overall, the Reduced Scale Alternative would have similar impacts to the proposed Project, although it would incrementally reduce the severity of a new significant and unavoidable impact to historical resources. The reduced scale and massing of new buildings would improve their compatibility with surrounding historical resources, but not to the extent that this alternative would avoid a significant and unavoidable impact. However, the impact to historical resources would be no more severe than anticipated in the 2020 LRDP EIR. Similar to the Project, this alternative would have a significant and unavoidable impact from exposing sensitive receptors to construction noise, but one which is no more severe than anticipated in the 2020 LRDP EIR. Also similar to the proposed Project, the Reduced Scale Alternative would introduce significant and unavoidable impacts that were not anticipated in the 2020 LRDP EIR with regard to visual character and quality and to inconsistencies with the LRDP objective regarding land use incompatibility. Relative to the proposed Project, the alternative would incrementally reduce the severity of these new significant impacts. In addition, impacts related to utility infrastructure would remain less than significant with mitigation to minimize infiltration and inflow to the sanitary sewer system.

SUMMARY OF IMPACTS FOR ALTERNATIVES

Table 22 compares the physical impacts for each of the alternatives to the physical impacts of the proposed project.

Table 22:
Comparison of Features of Proposed Project and Alternatives

Issue	Impact Classification[1]				
	Proposed Project	**No Project Alternative**	**Off-site Lease Agreement Alternative**	**Academic Building Only Alternative**	**Reduced Scale Alternative**
Aesthetics	Significant and unavoidable[2]	+ Less than significant	+ Less than significant	+ Potentially less than significant with mitigation	+/= Significant and unavoidable
Cultural Resources	Significant and unavoidable	+ Less than significant	+ Less than significant	+ Potentially less than significant with mitigation	+/= Significant and unavoidable
Land Use	Significant and unavoidable[2]	+ Less than significant	+ Less than significant	+ Less than significant	+/= Significant and unavoidable
Noise	Significant and unavoidable	+ Less than significant	+ Less than significant	+/= Significant and unavoidable	= Significant and unavoidable
Utilities	Less than significant with mitigation	+ Less than significant	+ Less than significant	= Less than significant with mitigation	+/= Less than significant with mitigation

+ Superior to the proposed Project (reduced level of impact)
- Inferior to the proposed Project (increased level of impact)
= Similar level of impact to the proposed Project
[1] Where multiple impact conclusions are reached, the "worst" impact conclusion is listed in the table.
[2] The Project would result in new significant and unavoidable impacts that were not anticipated in the 2020 LRDP EIR with regard to the resource topics of visual character and quality and of land use incompatibility. Other significant and unavoidable impacts related to cultural resources and noise would be within the scope of the 2020 LRDP EIR's analysis for implementation of the 2020 LRDP.

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