

**ADDENDUM** to the

**NORTHEAST QUADRANT SCIENCE AND SAFETY PROJECTS  
ENVIRONMENTAL IMPACT REPORT**

**UC BERKELEY 2020 LONG RANGE DEVELOPMENT PLAN  
ENVIRONMENTAL IMPACT REPORT**

for

JACOBS HALL

**PROJECT LOCATION:**

UC BERKELEY ADJACENT BLOCKS NORTH

**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 TO ADDRESS CLIMATE CHANGE AND ACCOMPANYING ADDENDUM #5 TO THE 2020 LRDP EIR

**SCH #2003082131**

~~January 14~~ March 5, 2014

Capital Projects | Physical & Environmental Planning  
300 A&E Building  
Berkeley CA 94720-1382

## I. INTRODUCTION

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### PROJECT OBJECTIVES

Planned to accomplish goals and objectives of the Northeast Quadrant Science and Safety plan and UC Berkeley 2020 Long Range Development Plan, Jacobs Hall is also planned to meet several project-specific objectives:

1. Provide facilities in compliance with the University Policy on Seismic Safety and current codes, through new construction (Jacobs Hall).
2. Provide the College of Engineering with new and expanded facilities needed for its current program and mission. Engineering design programs are dispersed throughout the College of Engineering facilities and frequently interact with programs in other Colleges on the UC Berkeley Campus. The new building would provide additional space designed to meet current College of Engineering design teaching and other program needs.
3. Provide the College of Engineering with new facilities without increasing University of California debt by constructing the building using donor funding.
4. Provide the Campus with flexible and collaborative engineering design space that allows for the integration of design and manufacturing within the educational process.
5. Implement policies of the 2020 LRDP, including among others:
  - Collaborative and interactive program policies: Build a campus that fosters intellectual synergy and collaborative endeavor within and across disciplines. Create places of interaction at key nodes of activity.
  - Stewardship policies: Plan every new project to represent the optimal investment of land and capital in the future of the campus. Plan every project as a model of resource conservation and environmental stewardship. Maintain and enhance the image 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.
  - Access policies: Ensure the University provides full access to users at all levels of mobility.
  - Sustainability policies: Minimize energy use in travel to and within the campus; optimize the use, and adaptive reuse, of existing facilities; plan, operate, and construct the project to support achievement of campus greenhouse gas emission reduction targets.

## PROPOSED ACTION

In order to accomplish key objectives, the University of California, Berkeley proposes to construct a new academic building (herein “Jacobs Hall” or “the project”) on an existing University-owned site at Ridge Road and Le Roy Avenue, adjacent to Etcheverry and Soda Halls. The new building would be a new, three-story (~~19,150~~approximately 24,000 gsf) structure with a basement level.

Jacobs Hall would provide the College of Engineering with expanded space for its teaching and research functions, as well as improved facilities for interaction within the school. The building would house the Jacobs Institute for Design Innovation and provide space for design studios; interactive workspaces; and student lounge and exhibit space. A building at this site was previously described in both the Computer Science/College of Engineering Building EIR (1990) and the Northeast Quadrant Science and Safety Project (“NEQSS”) EIR (2001) as “Soda II.”

## ENVIRONMENTAL REVIEW SUMMARY

UC Berkeley completed the Computer Science/College of Engineering Building EIR in 1990, which described and evaluated the environmental impacts resulting from the construction of Soda Hall (constructed in 1994) and an expansion to Soda Hall, or Soda II: a new 35,000 square foot academic building on the site now proposed for Jacobs Hall. The objectives of the 1990 project were to build a structure compatible in scale and architectural character with the adjacent buildings; maintain the landscape buffer between Soda and Ridge Road; achieve the program goals while contributing a positive infill building to the neighborhood; and to terminate the northbound path from Hearst Avenue.

An EIR tiered from the UC Berkeley 1990 LRDP EIR was prepared for a group of projects in the northeast precinct of the Berkeley Campus, collectively known as the Northeast Quadrant Science and Safety (NEQSS) projects. The NEQSS EIR evaluated development and redevelopment of several sites, including the Soda II building that had been analyzed in the Computer Science/College of Engineering Building Final EIR (1990). At the time of the NEQSS EIR, the plans for Soda II were preliminary and no design action was taken by The Regents.

In 2002 UC Berkeley agreed to several measures to address the City of Berkeley’s concerns on the NEQSS Projects (Letter from the City of Berkeley City Manager (W. Rucker) to UC Berkeley Chancellor (R. Berdahl), dated February 25, 2002). This settlement included agreements to collaborate with the City of Berkeley on construction-related traffic, specifically construction truck routing, to report and monitor construction-related complaints, to develop a construction traffic management plan, to improve Hearst Avenue for pedestrians, to replace tennis courts, to incorporate fire safety equipment, to address hazardous materials, to pay a fair share towards sewer payments, and to provide trip reduction programs. In general, the terms of the settlement agreement are incorporated as required mitigation not just specific to the NEQSS projects, but to all projects tiered from the LRDP and subject to the continuing best practices as mitigation.

Subsequent to the NEQSS studies, the Campus completed a new Long Range Development Plan and prepared an environmental document that assumed new development on the north side of campus. The proposed project would be partial implementation of the 2020 LRDP. The UC Berkeley 2020 LRDP EIR indicated that projects implementing the 2020 LRDP would be examined to determine whether subsequent project-specific environmental documents are required. The 2020 LRDP EIR states:

CEQA and the CEQA Guidelines state that subsequent projects should be examined in light of the program-level EIR to determine whether subsequent project-specific environmental documents must be prepared. If no new significant effects would occur, all significant effects have been adequately addressed, and no new mitigation measures would be required, subsequent projects within the scope of the 2020 LRDP could rely on the environmental analysis presented in the program-level EIR, and no subsequent environmental documents would be required; otherwise, project-specific environmental documents must be prepared (2020 LRDP EIR Vol I page 1-2).

The use of the 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). There, the document reiterated the text quoted above, and explained:

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 accordance with CEQA (Public Resources Code Section 21000 et seq.), and the University of California Procedures for Implementation of CEQA, this document evaluates the proposed project in contrast to anticipated development described and analyzed in the 2020 LRDP EIR. Based on the documentation included herein, the University finds the potential impacts from construction and operation of Jacobs Hall does not constitute new information of substantial importance regarding significant environmental impacts. Construction and operation of the project would not cause new significant effects upon any environmental topic area.

No significant changes to the circumstances of the 2020 LRDP or to the 2020 LRDP itself have occurred. There is no new information of substantial importance not known at the time the 2020 LRDP EIR was certified and amended by Amendment #1 regarding greenhouse gas emissions and climate change (addressed in Addendum #5 to the 2020 LRDP EIR, — see [www.cp.berkeley.edu/LRDP/2020LRDP/ClimateChange.htm](http://www.cp.berkeley.edu/LRDP/2020LRDP/ClimateChange.htm)) that indicates new significant effects, or that previously examined effects would be substantially more severe than described in the 2020 LRDP EIR. No mitigation measures or alternatives considerably different from those analyzed in the 2020 LRDP EIR are known at this time that would substantially reduce one or more significant effects on the environment identified in the 2020 LRDP EIR.

No mitigation measures or alternatives considerably different from those analyzed in the 2020 LRDP EIR or NEQSS EIR are known at this time that would substantially reduce one or more significant effects on the environment identified in the 2020 LRDP EIR or NEQSS EIR.

Copies of the 2020 LRDP EIR, NEQSS EIR and Addendum thereto are available for review during normal operating hours at the offices of Capital Projects' Physical and Environmental Planning offices, 3rd floor A&E Building on the UC Berkeley campus; and online at <http://www.cp.berkeley.edu>.

[This Addendum was initially published on January 15, 2014 to the UC Berkeley Facilities Services website \(http://www.cp.berkeley.edu/CP/Projects/JacobsHall/Details.html\). Notice of the availability of the Addendum for review was sent to UC Berkeley's CEQA notice list serv, a community mailing list. The published document included all discussion included in this document as well as illustrations of the project's proposed façade elevations, landscaping, site plan and building sections. The review period was January 15 to February 14. No written comments on the addendum were received.](http://www.cp.berkeley.edu/CP/Projects/JacobsHall/Details.html)

Since publication of the Addendum an early proposal to include a basement level has proven feasible for the project. This March 2014 version of the Addendum incorporates minor changes to the project description for Jacobs Hall to accommodate this change to the project. The change would not alter any of the environmental topic analyses. The added basement level would not alter project design, would not alter landscaping of the project, and would result in no significant change in use or anticipated population of the building. Throughout this document, underlining and strikeout is used to highlight any changes made to reflect the addition of the basement level.

## PROJECT-RELATED APPROVALS

This document analyzes and documents the impacts of the proposed project and all discretionary and ministerial actions associated with the project. Consistent with Sections 15050 and 15367 of the CEQA Guidelines, the University of California is designated as Lead Agency and would use this Addendum in assessing the effects of the actions detailed above.

Responsible agencies are those agencies that may have discretionary approval over one or more actions involved with the development of a proposed project. The campus consults with the City of Berkeley for projects located in the City Environs; however, the City does not have discretionary approval over any aspect of the project.

## DOCUMENT ORGANIZATION

This document is organized for easy use and reference. To help the reader locate information of particular interest, the following table of contents is provided. Figures referenced in each section appear at the end of each section.

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## II. PROJECT DESCRIPTION

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## ANTICIPATED CONSTRUCTION

## LRDP EIR MEASURES INCORPORATED INTO PROJECT AS PROPOSED

**PROJECT LOCATION**

UC Berkeley is located in the City of Berkeley, approximately ten miles east of San Francisco. See Figure 1, Regional Location. 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). The Regents of the University of California own the property.

The project site is on the north side of campus in the City Environs off of the Central Campus Park. The 70-foot by 125-foot site is bounded on the east side by Le Roy Avenue, on the north by Ridge Road, on the west by Etcheverry Hall, and on the south by Soda Hall. The site has three primary existing features: a sand volleyball court maintained by the College of Engineering; a temporary utility structure used by Soda Hall, and a mixed grove of sweet gum, coast live oak and elm trees. The site slopes upward to the east, with the Le Roy Avenue elevation approximately 15 feet higher than the western edge of the site along Etcheverry Hall. See Figure 2 and 3, project location and site photos.

Across Le Roy Avenue to the east of the site are the Cloyne Court Coop and the Goldman School of Public Policy. To the north, the project site faces several privately-owned, multi-family residences. As mentioned to the south and west of the site, Soda Hall and Etcheverry Hall are two College of Engineering academic buildings.

**SITE PLAN DESCRIPTION**

The Jacobs Hall project would construct a three-story building with a basement level at the site, with the longest façade on Ridge Road. At its south the building would open to a new pedestrian walkway between Soda Hall and the new building, as well as have a pedestrian bridge at the second level to connect Jacobs Hall to Wozniak Terrace on Soda Hall; on its west, the building would open to the trellised walkway between Jacobs Hall and Etcheverry Hall and its entrance would be opposite an entrance to Etcheverry Hall. See Figure 4.

**LANDSCAPE DESCRIPTION**

The project site is located in the City Environs, per the 2020 LRDP. This area has evolved over the years, and in some areas single-family homes have been redeveloped as multifamily buildings. Because this development has occurred project by project, many residential districts have an eclectic mix of older one- and two-family homes and newer, larger apartment buildings. The area immediately surrounding the project site has a number of residences listed on the local and state registry of historic places. The area is also adjacent to the Scenic Tract, a collection of homes in the Berkeley Hills characterized by their placement in a densely landscaped urban setting.

The existing site currently contains a sand volleyball court and several redwood trees and ground cover. This vegetation was planted recently and the trees are not considered specimen trees (J. Horner, personal communication, April 10, 2013). The site is generally level at the lower elevations where the volleyball court is located; however, Ridge Road slopes upward steeply (approximately 15 feet) from the western edge of the project site to Le Roy Avenue.

The new building would be set back from the edge of the sidewalk 8'3" along Ridge Road. Additional setback would be provided on the northeast and northwest corners of the structure, where notches in the building would provide an additional 9' 7" of landscape, for a total of 17' 10" of setback at the corners of the building. The east façade of the building would meet the edge of the sidewalk along Le Roy Avenue to provide the primary pedestrian entrance. The widths of the existing sidewalks on both Ridge Road (14') and Le Roy Avenue (10') would be maintained.

The project would remove the existing trees on the site. The trees to be removed range in size from 6 to 45 inches in diameter. The landscaped zone between the north face of the building and the sidewalk along Ridge Road would be replanted with a mix of columnar deciduous trees, shrubs and ground cover at the level of the sidewalk. The sidewalk and trees along Ridge Road and Le Roy Avenue at the project site would be removed and replaced. The existing liquid amber street trees along Ridge Road would be replaced with red maples to match existing trees along Ridge Road. Two new frontier elms would be planted on Le Roy Avenue. Two redwoods would be planted on either side of the entrance to the Etcheverry trellis from Ridge Road. The columnar trees in the landscape setback and the street trees would be positioned at an offset to create a layered affect. The project's landscape plan is shown in Figures 5a-c.

The replacement of street trees on Ridge Road is considered acceptable to both the University and City because the existing liquid amber trees are not a desirable street tree species and the project proposes to improve tree planter conditions with larger tree pits filled with decomposed granite (D Gallagher, August 14, 2013). Additionally, a consultant arborist, the City arborist and Campus Landscape Architect were consulted on the status of the existing trees on the site; they recommended the removal of the trees due to anticipated stress during building construction.

At this time, the percentage of impervious surfaces is anticipated to increase over existing conditions. However, in accordance with the 2020 LRDP and programmatic EIR, the project would achieve net zero increase by retaining the change in runoff between pre and post development. Based on the regional soil map, the site soil are not suitable for infiltration. The proposed site boundary is approximately 10,670 square feet. The existing condition has 3,986 SF of impervious area and 6,684 SF of pervious area. The proposed condition has 7,870 SF of impervious area and 2,800 SF of pervious area. The net increase in impervious area is 3,884 SF or approximately 36 percent. The net increase in runoff due to the additional impervious surface area would be mitigated and detained in on-site flow-through planters with an estimated no net increase in the rate of runoff. The detention volume has been determined to be 155 cubic feet (CF) based on the Section 5.1 of the C.3 Storm Water Handbook.

Landscape infiltration planters have been provided along the existing Soda Hall façade to capture roof runoff. These planters would have a prescribed soil profile best suited to retain water. Plant species would be selected that tolerate the variable conditions of such an environment. Several storm water retention strategies are under consideration. Water conservation measures within the landscape include the following: deep mulching, efficient irrigation, and appropriate drought tolerant species. A three-inch layer of mulch prevents the rapid evaporation and runoff of irrigation water. Drip irrigation, "hydro zoning" (the grouping and irrigation of species with similar water requirements), and a "weather-based" controller, greatly reduce irrigation water use. Plant species suited to the microclimate, and primarily drought tolerant, would be selected to ensure irrigation demand is kept to a minimum.



The landscape within the existing Etcheverry trellis walkway would be modified to enhance the connection between the new and the old building. Two existing planters would be removed so that the building entries would align directly across the promenade. A single planter, to match that removed and the other existing planters, would be replaced. The paving between the two buildings would be replaced in order to highlight the new pedestrian connection. The paving would complement the existing paving and new materials of Jacobs Hall. New plant materials in the existing and replaced planters would be drought tolerant and appropriate for the partial shade of the micro-climate. The species would be in keeping with those already planted along the trellis.

The pedestrian connection between Le Roy Avenue and Etcheverry trellis between Jacobs Hall and Soda Hall would be finished with cast in place concrete paving. A series of planters against the existing building façade would function as rainwater detention, as well as a visual amenity. At the level of Le Roy Avenue, Jacobs Hall would connect to the existing Wozniak terrace via a bridge at the west end of the site.

All exterior site new lighting would be shielded to minimize light spillage and atmospheric light pollution. Exterior lighting would be full-cutoff type downlighting only with no uplighting of trees or building features. The landscaping and trees along the north façade would help screen internal lighting from adjacent uses. Area lights would be programmed to run from dusk to dawn but controlled by occupancy sensors to dim to 50 percent level when spaces are unoccupied. Exterior lighting would be designed to meet CALgreen Green Building Standards 2010 and LEED SSc8 Light pollution reduction.

The project would provide bike parking in accordance with the UC Bike Plan requirement for 10 percent of peak occupancy. Bike parking for at least 34 bikes would be located in the Etcheverry trellis walkway, interspersed with the existing bicycle parking along the walkway.

## BUILDING DESCRIPTION

The proposed project would be a freestanding building of approximately ~~19,150~~24,000 gross square feet (gsf). The building would be approximately 60 feet on its eastern side and approximately 120 feet on its northern side, with deeper setbacks on both the northeast and northwest corners to provide building articulation and space for landscape treatment. The building would have ~~four~~three stories, ~~with a basement connecting to the Etcheverry Hall basement, a~~ the first level partially underground and at the same level as the Etcheverry trellised walkway adjacent to the site, and two fully above grade floors. The top three~~Each~~ levels would feature a central studio/workshop space meeting spaces, production rooms and restrooms along the edge. The basement level would house building mechanical equipment and storage and a central open area for computer lab space. The main entry to the facility would be located on Le Roy Avenue; a second entrance would be located on the west side of the building along the Etcheverry walkway. A mid-block, 16' 11" wide pedestrian passageway between Jacobs Hall and Soda Hall would connect Le Roy Avenue with the Etcheverry trellis. The mid-block passageway would be lit for safer passage. The basement level would connect to the existing basement in Etcheverry Hall via an improved passageway.

The building roof would be angled and feature photovoltaic panels; mechanical equipment would be housed on the west low roof below and screened from view by the photovoltaic array. The space between the top of the roof line and the top of the building form would allow for a clerestory window into the third floor studio space from the north. The upper studio level would feature two "pop-outs" on southern side of Jacobs Hall for critique space, but would otherwise be integrated into the main studio space. Production and equipment rooms would be located along the north end of the building facing Ridge Road.



The building would feature a pedestrian bridge between the second and main floor of Jacobs Hall and the third floor terrace (Wozniak Terrace) on the north side of Soda Hall. The bridge would be located over the mid-block pedestrian passage. The bridge would be used to facilitate utility connections from Soda Hall to the new building.

The building's primary façade material of the upper levels would be fiber cement rain screen; the lowest level would have a cast concrete facade. The windows would be aluminum framed with clear insulated glazing. Aluminum louvers for sun shading would be used at the south, east and west for sun protection. The size, color and finishes of panels may vary, depending on the orientation, but they would generally adhere to a roughly four-foot module. Materials would be selected keeping in mind sustainability, using recycled content, local sources, rapidly renewable materials and certified wood where possible.

Services to Jacob's Hall would be provided by the shared loading dock currently located behind Etcheverry Hall. Supplies ~~and, in~~ Materials would be rolled to Jacobs Hall either through the Etcheverry basement or from the loading dock to the Etcheverry freight elevator; from there items can be delivered carted to Jacobs Hall at the third level (trellis level). The building would work with the campus Recycle and Sustainability program to develop a comprehensive procurement and waste management plan that contributes to the campus zero waste goals. The new building would rely on Etcheverry's existing trash, recycling, and service access located at the east end of Level 1.

The building's design was guided by the project's design guidelines (July 2013) and other campus design policies, including the Physical Design Framework. In general, the scope of the design was intended to be respectful of the scale of the adjacent residential neighborhoods and to create a suitable infill building for this northern terminus of institutional uses in the north side of campus. The project was reviewed by the Campus Design Review Committee in July, September and November of 2013 and the City of Berkeley Design Review Committee in ~~the fall of~~ September and November 2013; When the project was reviewed in November, the project team had made several changes to the building's design to address some of the comments provided by these committees. ~~both~~ In November, both committees had favorable comments on the building's revised design.

## PROGRAM DESCRIPTION

The ability to effectively design new devices, systems and services is the hallmark of a skillful engineer. Engineering students come to UC Berkeley to enhance their skills at learning and harvesting the best new technologies to design innovative solutions to address society's biggest challenges. Exemplars include: better and less expensive health care solutions, new energy efficiency and distributed power generation, ubiquitous wireless swarms to instrument and interact with the cyber physical world, new financial services, sustainable manufacturing solutions, and reliable access to clean drinking water.

The Jacobs Institute for Design Innovation would be attract innovators at Berkeley, bringing together students of engineering from a wide range of interests and departments and life experiences to address in an integrative fashion the problems of combining technological innovation with human considerations such as usability and desirability; societal considerations like privacy and security; and the development of business and service models for establishing the viability of solutions in the real world. The Jacobs Institute would have several critical features:

**Identification of Opportunities and Needs.** University design centers are often criticized for producing solutions looking for questions. Thus, it would be very important for the design institute to incorporate a methodology for bringing real problems, issues and opportunities to the head of the design process.

**Rapid Prototyping.** The Institute would provide a physical location for multi-disciplinary design teams to work together at sharing and critiquing multiple concepts, leading to rapid prototyping.

**Spiral Development through Field Testing.** Field testing of initial prototypes prior to pilot deployments is critical for assessing the design and prototyping steps and refine initial designs.

**From Design to Manufacturing.** Too often the design process ends with successful conclusion of field tests without determining how and where the designed products can be produced at scale. Manufacturing includes many choices about where the parts are assembled, the logistics chain and marketing and distribution chain, and more broadly sustainable manufacturing. Thus, in the Jacobs design institute we would teach students how to incorporate knowledge about sustainable manufacturing into the design process.

**Venture Development.** Integral to design and manufacturing must be the development of service models, revenue models and more generally the corporate investment and venture eco-system to commercialize the designed products.

**Assessment and Iteration.** Continuous evaluation, assessment, and iteration of all steps of the innovation pipeline are needed to achieve solutions to the larger problems of society, and continue through to the successful launch of the designed products and services.

UC Berkeley would bring this innovation ecosystem into the Jacobs Institute and align with broader trends in engineering education to move away from a Socratic (didactic) style to a Platonic (integrative) style that combines experiential team learning with group reflection of the lessons learned. The components of the Jacobs Institute would provide students with the opportunity to gain hands-on experience that currently exist in dispersed units throughout the university. Consolidation of these activities within Jacobs Hall is expected to increase the collaboration and learning captured through multiple disciplines. As summarized in Table 1, the Project would provide space for:

- collaborative design studios and laboratories
- custom prototyping laboratories
- global ventures laboratory incubator integrated with the management of innovation curriculum
- private and interactive workspaces for integrated product design
- student lounge and exhibit space to develop and display new prototype designs and business models

Jacobs Hall would provide an undergraduate design experience for 1,500 to 2,000 students per semester. The typical class of 75 students would meet six hours per week (Monday-Friday), with another 12 hours per week of project work outside class. The building would be in use 12 hours a day, seven days a week. Each studio could accommodate five design classes per week, or 30 hours of instruction. Each would house up to 375 students per semester. The building would have a building occupancy of approximately 340 students and staff. The proposed space is not associated with an increase in students, staff or faculty FTE, but it would

allow for program offerings now located in other areas of campus to be consolidated in the new facility. The building would house only small offices for building-related staff.

**Table 1: Building Program Summary**

Program Description	Square Feet
Studios / Workshops	9,140
Equipment Rooms (e.g., Printers)	1,430
Meeting Space	850
Office Space	640
Lobby / Exhibit Space	1,140
Lounge	630
Storage / Utility	260
<u>Stair / Elevator / Hallways</u>	<u>3,350</u>
<u>Restroom</u>	<u>1,120</u>
<b>Total Usable Assignable SF:</b>	<b>17,360</b> square feet
<u>Basement</u>	<u>4,885</u>
1 <sup>st</sup> Floor	6,300
2 <sup>nd</sup> Floor	6,325
3 <sup>rd</sup> Floor	6,525
<b>Gross:</b>	<b>19,150</b> square feet

Source: LMS Architects, December 2013

## SUSTAINABLE DESIGN

Sustainable design has been integral to planning of the project. The project is currently targeting LEED Gold certification, as well as meeting energy commitments of AIA 2030 (70% reduction in energy compared to typical classroom building), through the incorporation of a number of green building strategies, including:

- Regarding site selection, the project features connectivity to the community and is located in a dense area with good access to public transportation and no new parking.
- An active storm-water management system with retention and treatment of impervious areas is being developed per University, City and State standards.
- Regarding water efficiency, landscaping would feature efficient planting species as well as efficient irrigation system. Toilet fixtures and lavatories would be low flow and designed to conserve water.
- Mechanical systems feature natural ventilation at perimeter spaces with no air conditioning. Heating is provided with radiant floors.
- Materials would be selected keeping in mind sustainability, using recycled content, local sources, rapidly renewable materials, and certified wood where possible.
- The program requires use of some machinery that creates fumes, releases particles or is noisy; indoor air quality would be maintained by separation of uses and use of a particle exhaust system and dust collection system where needed.
- Natural daylight, often from multiple directions is featured in all public spaces with access to views.

- Bike parking would be provide for 10 percent of the building’s occupants (approximately 34 bicycle parking spaces)
- University continuing best practices related to construction and waste recycling would be incorporated into the project.

Additional concepts being studied include:

- Digital displays of real-time energy data for verification and user feedback to provide accountability and incentives for saving energy
- Rainwater harvesting for use in non-potable fixtures to reduce building water consumption and stormwater impacts

## ACCESS AND PARKING

Access to Jacobs Hall would primarily be on foot or bicycle: no new vehicle parking is to be provided; however, the project is located near existing university parking facilities (Upper and Lower Hearst Parking Garages) for those who do drive. Upper Hearst Garage provides parking for faculty and staff with C, F, M and MP parking permits; Lower Hearst Garage provides parking for faculty, staff, and students with C, F, S, CP and DP permits and visitors. On-street near the project site is metered.

Pedestrian access to Jacobs Hall would be provided from Le Roy Avenue and from Etcheverry trellis walkway. The primary pedestrian route from campus would be via the existing pathways between Cory Hall and Sutardja Dai Hall and Blum Hall that end at the Hearst Avenue/Le Roy Avenue intersection. A new mid-block passageway between Soda and Jacobs Halls would connect Le Roy Avenue to the Etcheverry trellis walkway.

Per the 2002 NEQSS settlement agreement with the City of Berkeley, the Campus would make pedestrian improvements to the intersection of Hearst Avenue and Le Roy Avenue and to Gayley Road near Stanley Hall. These improvements are meant to improve pedestrian access and safety for students and employees traveling to and between buildings in the Northeast Campus. These improvements would fulfill NEQSS Mitigation Measure TRAF-2.

Hearst/Le Roy Intersection Improvements: Campus would fulfill its obligation towards pedestrian improvements at the Hearst Avenue and Le Roy Avenue intersection by completing the intersection improvements identified in the Hearst Avenue Complete Streets Study (2012):

- Installation of a new traffic signal
- Curb extensions into Hearst Avenue on both the northwest and northeast corners
- Restriping of the existing crosswalks

These improvements have been reviewed by both campus staff and City of Berkeley staff and Transportation Commission and are considered the most appropriate method to improve pedestrian safety at the intersection. These improvements meet the mitigation measures’ standard of “other devices to provide adequate warning to motorists regarding the presence of pedestrians intending to cross the street.”

Gayley Road: Three crosswalks cross Gayley Road – just north of Stanley Hall, on the south side of University Drive, and approximately 100 feet south of University Drive (between Lewis Hall and the Greek Theater). All three are marked with high-visibility markings and signs indicating pedestrians. Gayley Road is a two-lane roadway with relatively low traffic volumes and pedestrian volumes, except during the peak times of

day (e.g., morning and evening commute hours). Project-related enhancements would include replacement of old signage with new signage with a fluorescent yellow-green background with a black legend and border, based on current State of California sign standards. These signs, along with a sign of a down arrow pointing to the crossing, would be placed in both directions at the crosswalk north of Stanley Hall and at the crosswalk between Lewis Hall and the Greek Theater. A YIELD TO PEDESTRIANS sign would be placed on the median at the University Drive intersection.

The bike parking for the project would be part of the overall bike parking provided along Etcheverry trellis walkway. The project would provide bike parking for 10 percent of peak occupancy in accordance with the Campus' Bike Plan requirement. Bike parking would be distributed in the Etcheverry trellis walkway. The approach to providing additional parking capacity is to remove existing, spatially inefficient, racks and replace these racks with an "inverted U" rack. There would be a net increase of approximately 34 bike parking spots.

## **GRADING, EXCAVATION, DRAINAGE AND UTILITIES**

Jacobs Hall would be partially constructed over the Etcheverry and Soda Hall basements. A portion of the site is to be partially filled to match sidewalk grades. Building would be seismically braced with buckling restrained braced frames and concrete shear walls and would be designed to University of California Seismic Safety Policy, Level II. Building would be structurally analyzed using non-linear response history analysis with ground motions scaled to the UCB Campus Response spectrum. Seismic Review Committee ("SRC") meetings would be conducted and modifications to the design would be implemented as needed to meet the SRC requests.

The UC Berkeley Campus Response spectrum would be used to determine the site specific peak acceleration, as well as for scaling ground motions for the structural analysis. Building would be designed to meet Life Safety performance requirements for the Design Earthquake (DE, 475yr return period) and Collapse Prevention performance requirements for the Maximum Considered Earthquake (MCE, 949yr return period).

The HVAC/mechanical system utilizes a packaged unit to provide 100 percent outside air to spaces within the building. The unit would temper the outside air and deliver it at moderate temperatures. The unit provides heating with hot water produced by the existing steam plant in Soda Hall. Similarly, the unit would provide cooling with the chilled water produced by the existing chiller plant. By reducing the energy consumed by lighting, HVAC, and domestic hot water systems, the goal of exceeding Title 24 by 20 percent shall be reached.

An in-slab radiant floor system would transport heating energy throughout the building. The distribution system would be served off of a common two-pipe system. This system would provide heating. The radiant floor system would be separated into zones with manifolds. This zoning allows for varying water temperatures within the building, providing flexibility for maintaining different desired indoor conditions.

Sub-meters would be provided at the panel board level. Sub-meters shall be web-enabled and shall communicate to the Energy Management System, where the data shall be collected and stored via data acquisition system.

Heating hot water for the new building would tap into the existing hot water system in Soda Hall, which is produced from the campus steam system. A pricing alternate is being considered to use a high efficiency gas fired condensing boiler located in the basement in lieu of utilizing the existing system.

A complete sanitary waste and vent system shall be provided throughout the building. A gravity system shall be provided for fixtures above grade, served by a four-inch gravity lateral. Sanitary sewer requirements of the new building would moderately increase loading on the municipal sanitary sewer system. The proposed point of connection is along Ridge Road. Within the building, low-flow plumbing fixtures would greatly reduce effects on the sanitary sewer system. It should be noted that pursuant to the 2002 settlement agreement between the City of Berkeley and Campus, campus has supplemented its annual payment to the City for the marginal costs of these services provided by the City, which has also been described in the 2020 LRDP continuing best practices.

Air distribution systems would be selected and sized in line with the acoustical consultants recommended criteria. Diffusers would be selected depending on space type and its corresponding noise criteria, but not to exceed NC-50. Supply and return ducts would be sized to reduce air velocity to no more than 600 and 700 FPM (cubic feet per minute) respectively. Fans and other mechanical equipment shall also be selected taking into account noise generated and installed to minimize vibration.

Low-flow plumbing fixtures would be chosen for this installation that would conserve water. These low-flow plumbing fixtures would reduce the domestic water consumption significantly. The 1.28 gpf TOTO EcoPower High Efficiency Wall Mounted Water Closet and Flush Valve would be used in all restrooms. This combination of flush valve and water closet has a MaP (Maximum Performance) score of 1000. The 0.125 gpf TOTO EcoPower High Efficiency Urinal and Flush Valve would be used in the men's restrooms. The restroom lavatories and faucets would be Sloan Solis solar powered sensor operated faucet provided supplied with warm water only. Faucets would be supplied with 0.35-gpm aerators. Lounge sinks would have low flow faucets that would reduce the amount of water being consumed at the faucets to 1.0 gpm. Mop sinks would have standard faucets that would not limit the amount of water being consumed. Compressor-free high/low drinking fountains with bottle filler would be located areas as shown on the architectural floor plan.

## CONSTRUCTION

Overall construction of Jacobs Hall would take 14 to 16 months and is anticipated to begin in summer of 2014. As with any campus project, demolition and construction would result in noise and vibration. Construction of the project would also require excavation shoring and temporary structural and excavation. Commonly major construction operations are coordinated to help reduce impacts in the vicinity and on campus. No pile drivers are anticipated at this time. When timelines are more established, the contractor would coordinate with both the city and the University to limit overlap of work that requires, for example, intensive trucking. Construction work may require temporary sidewalk or parking lane closures; however, these temporary changes would be coordinated with the City of Berkeley and follow campus continuing best practices. Per the 2002 settlement agreement between the Campus and the City of Berkeley and consistent with the [campus' Continuing Best Practices](#), the campus construction traffic management plan would describe standards and protocols to protect bicyclists and pedestrians to the extent feasible and provide a point of contact on campus for construction related complaints.



## LRDP ENVIRONMENTAL IMPACT REPORT MEASURES INCORPORATED INTO PROJECT

As planned and proposed, the project (and therefore, this project description) incorporates measures and best practices established in the programmatic environmental impact report for the UC Berkeley 2020 Long Range Development Plan. Please see Part VI., below.

### III. PLAN AND POLICY CONTEXT

Contents of this section:

CONSISTENCY WITH THE NEQSS PROJECT

CONSISTENCY WITH THE 2020 LRDP (2005)

CONSISTENCY WITH THE PHYSICAL DESIGN FRAMEWORK

#### CONSISTENCY WITH THE NEQSS PROJECT

As previously mentioned, the project was previously considered within the NEQSS EIR, which was prepared subsequent to the Computer Science/College of Engineering Building Final EIR. A building on this site was previously referred to as “Soda II.” At the time, the site was envisioned as a potential expansion area for the College of Engineering programs housed in Soda Hall (Computer Science) when needed. At the time, up to 125 full time staff would have been housed in Soda II. Similar to the previous project, the Jacobs Hall project is an extension of College of Engineering academic uses; however, the new project is not proposed to house new staff. Rather, the new academic building would house open studio space with support space for small group meetings or equipment. ~~A small offices for on-site coordinator staff (~approximately 640-800 sf) is~~ are proposed.

The Soda II project analyzed a two-story underground structure with a third level entrance at the corner of Le Roy Avenue and Ridge Road. The top of the structure would be open space. The NEQSS EIR included mitigation related to landscaping and visual resources, specifically to design the structure to be compatible to adjacent architectural context and to preserve or replace a significant amount of landscaping to screen the new building. As currently proposed, Jacobs Hall would be a three level structure, with two levels above the Le Roy Avenue street level, and a basement level below grade and connected to the existing basement in Etcheverry Hall. To reduce the potential visual impacts of a taller structure, the project includes an eight foot landscaped setback along Ridge Road with columnar trees offset to the street trees to create a layered and denser tree coverage along the building’s north façade. Two new prominent redwoods would be planted on either side of the Etcheverry trellised walkway to frame the pedestrian entrance. The northeast and northwest corners of Jacobs Hall would be notched to provide additional landscape zone. The corners would be set back approximately 18 feet. The height of the building would comply with the City of Berkeley zoning requirements for the site if the site was not Regental property.

Additionally, the previous Soda II project was entitled under the Campus’ 1990 LRDP, which has been superseded by the 2020 LRDP. In Section V, cross-references are made between the current 2020 LRDP mitigation measures and 1990 LRDP mitigation measures, where applicable. The Jacobs Hall project would incorporate all previous mitigations by reference.



## CONSISTENCY WITH THE 2020 LRDP (2005)

The project is proposed as partial implementation of the UC Berkeley 2020 Long Range Development Plan (2020 LRDP). Adopted by the Regents in January 2005, the 2020 LRDP describes both the scope and nature of development proposed to meet the goals of the University through academic year 2020-2021, including projections of growth in both campus headcount and campus space during this timeframe. 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 Location Guidelines, which establish priorities for the location of campus functions, and the City Environs Framework, establishing the design framework relevant at the proposed project site. See the 2020 LRDP EIR, Volume 1, page 3.1-47.

The 2020 LRDP distinguishes between the 180 acre Campus Park; the Hill Campus consisting of roughly 1000 acres east of the Campus Park; and the City Environs defined as blocks adjacent to campus, other Berkeley sites, and the 2020 LRDP housing zone. The LRDP designates the Central Campus Park as the appropriate location for academic and teaching facilities, such as Jacobs Hall, and encourages the location of ancillary facilities outside the Central Campus Park. See the 2020 LRDP EIR, Volume 1, page 3.1-61.

The 2020 LRDP Location Guidelines prioritize academic facilities on the Campus Park; however, the project does complement the other direct academic and teaching facilities of the College of Engineering located in Soda Hall and Etcheverry Hall. One of the benefits of locating academic space on the Campus Park is the synergy of close proximity of direct academic and research functions; construction of academic space on the project site would similarly benefit Soda and Etcheverry Halls by creating a more intensive academic use of the block as a whole.

The 2020 LRDP notes that:

*Enrollment is only one of many drivers for growth at UC Berkeley. New academic initiatives and continued growth in research also create demand for more space on and around campus. While some of this demand can be met through renovation of existing buildings, new buildings are also required, particularly for programs that demand high performance infrastructure and other advanced features renovated space cannot provide. (2020 LRDP, page 15)*

The site for the project is governed by the 2020 LRDP. The project would be located in the area designated in the 2020 LRDP as the Adjacent Blocks North. The 2020 LRDP anticipated up to 50,000 net new gross square feet of academic and support space would be developed on the Adjacent Blocks North over the lifetime of the 2020 LRDP, and over 2.2 million net new gross square feet within the entire area governed by the 2020 LRDP (2020 LRDP EIR Vol 3a, 3.1-14). These growth envelopes were analyzed in the 2020 LRDP EIR. As shown in Tables 2 and 3 below, the project would result in space levels below levels anticipated in the 2020 LRDP.

**Table 2: Comparison of Project to 2020 LRDP Program: Space**

	Gross Square Feet	% total LRDP GSF
Max New Academic and Support GSF in 2020 LRDP <sup>1</sup>	2,200,000	100%
Max new Academic and Support GSF due to other projects <sup>1</sup>	811,364	37%
Max new Academic and Support GSF due to Jacobs Hall <sup>2</sup>	<del>49,150</del> 24,035	<del>&lt;41%</del>
Net new Academic and Support GSF remaining	1, <del>369</del> 364,490605	62%

Sources: (1) UC Berkeley Physical & Environmental Planning, October 15, 2013; (2) LMS Architects, December 2013

**Table 3: Comparison of Project to 2020 LRDP Program Adjacent Blocks North: Space**

	Gross Square Feet	% total Area GSF
Max New Academic and Support GSF in 2020 LRDP <sup>1</sup>	50,000	100%
Max new Academic and Support GSF due to other projects <sup>1</sup>	0	0%
Max new Academic and Support GSF due to Jacobs Hall <sup>2</sup>	<del>49,150</del> 24,035	<del>3848%</del>
Net new Academic and Support GSF remaining	<del>30,850</del> 25,965	<del>6252%</del>

Sources: (1) UC Berkeley Physical & Environmental Planning, October 15, 2013; (2) LMS Architects, December 2013

The following **2020 LRDP Objectives** are particularly relevant to the proposed project:

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

The proposed project would provide space for the teaching and related functions of the College of Engineering. Jacobs Hall would house studio space for design engineering education programs currently dispersed throughout the College of Engineering and Campus, as well as provide a central location for the Jacobs Institute program.

**Build a campus that fosters intellectual synergy and collaborative endeavors both within and across disciplines.**

Jacobs Hall would accommodate a flexible and collaborative academic and research environment for advanced engineering design and manufacturing processes. The Jacobs Design Innovation Institute is envisioned as a nexus for fostering innovative engineering design at Berkeley, bringing together students of engineering from a wide range of interests, departments and life experiences to address, in an integrative fashion, the problems of combining technological innovation with human and ethnographic considerations like usability and desirability; societal considerations like privacy and security; and viable business models for the real world. The components of the Jacobs Institute at Jacobs Hall would enable students to gain hands-on experience in rapid prototyping, design automation, collaborative teamwork, and venture development. The new building would complement other College of Engineering programs housed in Soda and Etcheverry Halls, adjacent to the new building.

**Plan every new project to represent the optimal investment of land and capital in the future of the campus.**

The project site is a suitable location for College of Engineering-related activities due to its location adjacent to the College's existing facilities at Etcheverry and Soda Halls. The new facility would be an important investment in the future of the university's engineering programs. Although the project site is located in the Adjacent Blocks, the surrounding uses on two sides include College of Engineering academic facilities that would benefit from additional student activity in the area. Additionally, the site has been identified as a building site for academic uses in previous planning and environmental documents.

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

Policies under this objective include incorporating sustainable design principles into capital investment decisions; 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 2020 LRDP Addendum #5, incorporated herein by reference, describes the many activities the campus undertakes to reduce resource consumption. All University construction is subject to the Policy on Sustainable Practices (<http://www.ucop.edu/facil/sustain/>) which include green building design practices. The project would be designed to meet LEED Gold standards. The project does not include vehicle parking dedicated to the program uses; however, bicycle parking would be provided and the site is well served by campus shuttle lines.

**Accommodate new and growing academic programs primarily through more intensive use of University owned land on and adjacent to the Campus Park.**

The project would address this policy by expanding the amount of modern, program-driven space available to the teaching programs of the College of Engineering in a new building on a small footprint of land immediately adjacent to the existing Soda Hall and Etcheverry Hall. Given its location on the Adjacent Blocks, the project site is presently underutilized as a volleyball court. Although the site was not explicitly designated as a potential project site at the time the LRDP was written, the proposed use is entirely congruent. The LRDP provides that during the lifetime of the LRDP up to 50,000 gross square feet of additional academic and support space may be added to the Adjacent Blocks North. The additional square footage of the project would be accommodated within these limits.

**Use municipal plans and policies to inform the design of future capital projects in the City Environs.**

The new building was reviewed against the City of Berkeley zoning regulations for the site if the land was not owned by the Regents and found to be generally consistent with guidelines related to setback and massing. The project was designed to relate to the adjacent urban fabric, including existing setback, height and landscape characteristics. The City of Berkeley Design Review Committee reviewed the design of the project in September and November of 2013 and was supportive of the design of the project.

**Create places of interaction at key nodes of activity.**

The project would enhance existing places of outdoor interaction at the Etcheverry trellis and Wozniak Terrace, facing out onto renovated or new construction outdoor spaces and pedestrian circulation routes.

## **CONSISTENCY WITH THE PHYSICAL DESIGN FRAMEWORK**

The UC Berkeley Physical Design Framework, accepted by the Regents in Nov 2009, includes principles for both land use and architecture, built upon on the policies and guidelines in the 2020 Long Range Development Plan. Please refer to the site plan and elevations and perspectives of the project shown in the project graphics package.

**Utilize landscape and open spaces to help create a distinct university image and identity for projects in the City Environs, but**

**Design those landscape and open spaces as urban places that respect and enhance the urban fabric.**

The project would be one of the northernmost campus academic uses in the City Environs of the north side and would form the northern edge of a block of other instructional uses in Etcheverry and Soda Halls. The north façade of the building would project an institutional image through its height and mass and the east façade would project an institutional image by providing a prominent entryway; however, the columnar trees and notches on the northeast and northwest corners of the building are meant to soften the appearance of the structure and acknowledge the residential and landscape character of the adjacent uses. The building's longest façade would be parallel with Ridge Road to define the street and landscape edge and have height similar to adjacent buildings, both academic and non-academic, to respect the existing urban fabric. The building's main entrance would be on Le Roy Avenue and feature a small exhibit space for student work to create interest for those looking into the building.

**Design future projects in the City Environs to frame, observe and activate the public realm and internal open spaces.**

**Create places of interaction at key nodes of activity in the Campus Park and the City Environs.**

**Program and design new buildings to promote activity in, and ensure the safety of, places of interaction and the public realm.**

The project's main entrance would be on Le Roy Avenue, creating a defined pedestrian connection from the Campus Park to the project via the Heart Avenue/Le Roy intersection and a more active sidewalk along Le Roy Avenue between Soda Hall, Goldman School, Jacobs Hall and Cloyne Court. The building would create a new internal pedestrian walkway and open space between Soda Hall and the new building that would provide for sheltered open space and a place of interaction between the two buildings. The building would frame and activate the Etcheverry trellis walkway secondary pedestrian entrance for people approaching the site from the west along Ridge Road. These internal spaces would be quieter and reflect the more academic character of the space and feature smaller-scale seating and tables. Windows from Jacobs Hall, Soda Hall and Etcheverry Hall would look out into these spaces to provide for more visibility of the users of the space.

**Ensure each project on the Campus Park or in the City Environs conveys an image of substance, elegance and permanence.**

Jacobs Hall would be a three story academic building occupying most of the existing vacant land north of Soda Hall to create a substantial university presence along Ridge Road and Le Roy Avenue. Concrete and

steel structural elements would be exposed in many areas, and the façade would feature swiss pearl panels, cast concrete and glass. The building's interface and improvements to the Etcheverry trellised walkway and the pedestrian bridge between the second story of Jacobs Hall and Wozniak Terrace on Soda Hall would convey physically the building's connection with programs in Etcheverry and Soda Halls, respectively. The landscape plan includes two substantial trees to be located on either side of the Etcheverry trellis entrance on Ridge Road as a visual cue to the entry onto campus property.

**Ensure each project on the Campus Park or in the City Environs is shaped by enduring values rather than ephemeral trends**

As described in the Physical Design Framework, the City Environs is more resilient and receptive to new design goals and directions; however, the design of new projects in this area should continue to be receptive to the Campus palette, particularly as they relate to sustainable design practices. The design of Jacobs Hall uses simple forms to create an efficient and elegant structure to house studio space for the Jacobs Institute of Design Innovation. The design is meant to provide flexibility within the structure for the program uses by reducing the number of internal walls. On the exterior, aluminum louvers along the windows and a photovoltaic panel on the roof add interesting architectural features while performing building functions.

**Ensure future projects on the Campus Park and in the City Environs are informed by the Berkeley Campus Palette.**

Per Figure 9 of the Physical Design Framework, the project is outside of the UC Berkeley Classical Core, but is adjacent to the Picturesque Zone, which includes Cloyne Court Coop and the Goldman School of Public Policy to the east of Le Roy Avenue. (The site itself is in the Adjacent Blocks North, per Figure 1 in the Physical Design Framework.) With respect to architectural style, the dominant tradition on the Berkeley campus is the neoclassical tradition seen in the classical core. The project site is outside the defined classical core and picturesque zones, but it is more closely identified with the picturesque tradition, with its origins in the craftsman style. While the architecture of the project does not try to imitate this style, it respects and complements the tradition in general. The project features a symmetrical northern façade. The upper most story features a clerestory window to allow natural light into the studio space, as well as punch-outs on the southern façade. The roof line is sloped to balance the stepped form of Soda Hall with the gabled residential roofs.

**Design Projects in the City Environs to respect the form and scale of the urban fabric, and frame and activate the public realm.**

The project is a three story building with entry ways on Le Roy Avenue and on the Etcheverry walkway. The building's height is similar to that of the surrounding residential buildings and slightly shorter than Etcheverry and Soda Halls to allow the building to "step down" and respect the smaller scale buildings in the neighborhood. The building is set back from the street with a landscape buffer to reduce the perceived mass of the buildings; the notched northeast and northwest corners similarly reduce the scale and mass of the building. The entryways are designed to include small exhibit spaces and glass walls to increase the visibility into the building from the street and provide some visual interest to those passing by the space. Building entrances and windows along the internal public spaces would activate the public realm.

**Compose new buildings primarily of orthogonal forms with orthogonal relationships to existing buildings.**

As shown in the graphics package, the building retains an orthogonal relationship to Ridge Road and Le Roy Avenue, creating a visual terminus to the northern edge of campus and spatial enclosure for the Etcheverry walkway and Wozniak Terrace.

**Design buildings over 3 stories to include an articulated base, middle, and top: variations in color, texture, or wall/window ratio may be used to articulate base and top.**

**Compose facades primarily of solid walls and punched windows that respect the structural grid.**

**Use glass walls primarily for special features or spaces, or where program merits greater transparency.**

**Clad solid walls primarily in stone or cast materials with sand texture and integral color.**

The proposed building has a tri-part composition distinguished by horizontal steel and panel elements. The lower level is at the level of the Etcheverry walkway and partially underground at its eastern end with both cast concrete and windows (north and south facades) and glass walls (western lobby). The middle layer is similar to the lower level, but flipped with a glass walled atrium on the east lobby. The upper level has two elements, the primary form is rectangular with swiss pearl fiber finish with a clerestory window just below the roof line to create a distinctive roof feature that increases north lighting into the central studio space. The uppermost clerestory level completes the tri-part composition. Glass walls would be used at both atria on the east and west ends of the building to highlight the spaces and their exhibit uses.

**Buildings outside the classical core may have flat roofs and consider special treatment of top floors to enhance building composition.**

**Conceal roof equipment with enclosures integral to the building architecture.**

The project features a slanted flat roof with photovoltaic cells and a clerestory window at the upper level below the shaded cornice. This feature enhances the third story studio space and allows for additional natural light from the north. Mechanical equipment is enclosed or provided within Soda Hall and brought into the building under the pedestrian bridge at the second level.

## IV. 2020 LRDP ENVIRONMENTAL IMPACT REPORT – IMPACT SUMMARY AND PROJECT-RELATED ANALYSIS

### AESTHETICS

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP at UC Berkeley would not result in new significant aesthetic impacts (2020 LRDP FEIR Vol. 1, 4.1-15 to 4.1-19); nor would the 2020 LRDP make a cumulatively considerable contribution to adverse aesthetic impacts (2020 LRDP FEIR Vol. 1, 4.1-22 to 4.1-24).

The Computer Science/College of Engineering EIR and NEQSS EIR found that the project at the time would (1) block views from residential areas; (2) contrast with nearby residential structures and alter the street-level environment in terms of design, bulk and height; and (3) increase night-time ambient lighting levels. The potential impacts related to items 1 and 3 were found to be less than significant after implementation of mitigation but that item 2 would remain significant and unavoidable and that the project would contrast with nearby areas and alter the street-level environment (NEQSS EIR, Vol. 1, 3.3-19 to 3.3-20).

The current project would primarily be visible from the immediately adjacent areas, but the staggered trees in the landscaped setback and along Ridge Road and Le Roy Avenue would reduce and soften the appearance of structure and allow it to be visually compatible with the other heavily landscaped setbacks of adjacent residential properties (see NEQSS EIR, Mitigation Measure SODA 4.2b). The building's notches on the northeast and northwest corner reduce the mass of the building and provide for additional landscape space to transition between the institutional character of the building and Soda and Etcheverry Halls to the surrounding residential area (NEQSS EIR Mitigation Measure SODA 4.2-3b). The Le Roy Avenue façade would be visible, but no more prominent than Soda Hall, which also has limited setback from the sidewalk, and would feature a glass-enclosed entrance hall and exhibit space to create sidewalk-level visual interest and to transition the architectural style of Soda Hall to a more human scale of the neighborhood. The east façade would help create a visual link to the other institutional uses and the surrounding neighborhood (NEQSS EIR Mitigation Measure SODA 4.2-3b). The design of the building, including its structural elements, materials and landscape, has been developed to reduce potential impacts to adjacent buildings and the neighborhood to the extent feasible per NEQSS EIR Mitigation Measures SODA 4.1-3, 4.1-4, 4.2-1a, 4.2-3a, 4.2-3b, and has been reviewed by both the Campus' and City of Berkeley's Design Review Committees (per NEQSS EIR Mitigation Measures SODA 4.1-1a, 4.2-3c and 4.3-3b, and 2020 LRDP EIR Mitigation Measures Continuing Best Practices AES-1b and AES-1e). The project would not impact any important scenic vistas as defined in the 2020 LRDP. There are no other scenic vistas in the vicinity of the project and no impact would occur. See 2020 LRDP EIR analysis, Vol 1, 4.1-17 through 4.1- 24, as amended by Vol 3A, 9.1-6 to 9.1-7.

Project lighting is being designed to include shields and other devices to minimize light spillage and atmospheric light pollution, and reflective surfaces would be minimized, but continue to provide for security and circulation. The project's landscaping along the north façade would additionally help screen potential interior light sources. (2020 LRDP EIR Mitigation Measures AES-3a, AES-3b; NEQSS EIR Mitigation SODA 4.2-3d, 4.2-4).



As mentioned in the Project Description above, the Campus Landscape Architect has advised that no specimen trees occur on the project site, and none would be adversely affected by the project. An independent arborist determined that although the trees appear to be in good health, construction of the new building would likely affect them and that removal should occur (HortScience, 2013). The Campus Landscape Architect, project landscape architect, and City Arborist have inspected the site and determined that replacement of the existing street trees with new trees would be beneficial and would not adversely alter the visual character of this roadway (NEQSS EIR Mitigation Measure 4.5-1d, 4.5-1f). The Campus Landscape Architect has advised that to offset this loss and other possible impacts on the campus landscape, the landscape plan for the new building would include columnar trees along the northern façade of the building offset with the street trees to increase the density of foliage covering the façade and soften the appearance of the building, as well as replace prominent trees on either side of the Etcheverry trellis walk way entrance on Ridge Road (NEQSS EIR, Mitigation Measures SODA 4.2-1b, 4.2-3b, 4.3-3a, 4.5-1c, 4.5-1d, 4.5-1e; verbal communication from Jim Horner, November 2013).

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding the 2020 LRDP with respect to aesthetic issues that were not adequately analyzed and, as necessary, mitigated, and no new information is available. The proposed project would not alter the findings of the 2020 LRDP EIR or NEQSS FEIR with regard to Aesthetics and some impacts would remain significant and avoidable after implementation of project mitigation measures.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, in combination with other foreseeable projects, would result in visual changes. The project is not a considerable contribution to any degradation of the visual character of the campus and environs, nor does it adversely affect scenic vistas, as examined in the 2020 LRDP EIR (2020 LRDP EIR p. 4.1-22).

## AIR QUALITY

The 2020 LRDP FEIR 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 releases, and incorporating existing best practices and 2020 LRDP FEIR mitigation measures would, with one exception, not result in new significant air quality impacts (2020 LRDP FEIR Vol. 1 p. 4.220 to 4.226). As the one exception, the 2020 LRDP FEIR conservatively estimated that the Bay Area Air Quality Management District's (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 nonattainment pollutants that conflicts with the Clean Air Plan (2020 LRDP FEIR Vol. 1).

In May of 2011, the BAAQMD published updated Air Quality Guidelines for the California Environmental Quality Act. The proposed project would not exceed screening criteria levels for criteria pollutants and precursors: see, for example, comparable statistics at Government land use type (civic center) (BAAQMD CEQA Air Quality Guidelines page 3-3). As described further below, UC Berkeley has a qualified (meeting BAAQMD's criteria) GHG Reduction Strategy; further, UC Berkeley implements basic construction-related mitigation measures substantially similar to those recommended by BAAQMD (BAAQMD CEQA Air Quality Guidelines page 8-3; see also page 3-5).

The proposed project would include removal of an existing sand volleyball court and utility box and construction of new building and related elements. No demolition would be involved in the project. No new wet laboratory space is expected. In addition, the project would not affect Campus population. Particulate and dust collection systems would be used to separate and maintain indoor air quality at acceptable levels. Furthermore, because the project would not affect campus population, vehicular traffic and concomitant emissions would be similar to the existing condition and less than those resulting from the project considered in the Computer Science/College of Engineering EIR and NEQSS EIR for the project.

The action proposed herein would not result in new air quality impacts not previously considered; would not contribute to significant environmental impacts previously identified in the 2020 LRDP FEIR or NEQSS EIR, and would not result in those impacts being more severe than as described in the 2020 LRDP FEIR or NEQSS FEIR. No additional mitigation measures have been identified that would further lessen the previously identified impact, and no additional analysis is required.

The construction of the project would generate some temporary increase in construction-related emissions; however, the project would incorporate LRDP Mitigation Measure AIR-4a and AIR 4b and LRDP Continuing Best Practices Mitigation Measure AIR-4a and AIR-4b to control construction-related emissions and not violate air quality standards (Consistent with 2020 LRDP Impact AIR-4). Overall construction of Jacobs Hall would take 14 to 16 months and is anticipated to begin in summer of 2014. Commonly major construction operations are coordinated to help reduce impacts in the vicinity and on campus. No pile drivers are anticipated at this time. Per the 2002 settlement agreement between the Campus and the City of Berkeley and consistent with the Continuing Best Practices, the campus construction plan would describe standards and protocols and provide a point of contact on campus for construction-related complaints. Furthermore, the construction work would be less intensive than the construction previously proposed for the site for the NEQSS EIR, because the revised project no longer includes substantial excavation that would be otherwise associated with construction of basement levels on the site.

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. The proposed project would not alter these findings. Since certification of the 2020 LRDP FEIR, the key change to circumstances surrounding the 2020 LRDP is a beneficial one: namely, in November 2013 UC Berkeley announced that it has met its carbon reduction targets, and would be establishing new targets (see <http://newscenter.berkeley.edu/2013/11/12/two-years-early-uc-berkeley-meets-its-carbon-reduction-target/>). There have been no substantial changes to the 2020 LRDP and no significant adverse changes to the circumstances surrounding 2020 LRDP development with respect to air quality that were not adequately analyzed and, as necessary, mitigated, and no new information is available.

The 2020 LRDP EIR found 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.

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. 4.231) 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). The new Jacobs Hall would not be a significant source of pollutants, TACs or diesel particulate matter. Construction -- including minor demolition -- activities required to implement the 2020 LRDP would be controlled by best management practices in accordance with air district guidance and the proposed project would not result in cumulatively considerable air quality impacts related to construction.

## BIOLOGICAL RESOURCES

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant impacts upon biological resources (2020 LRDP FEIR Vol. 1, 4.322 to 4.330). The Computer Science/College of Engineering Building EIR and NEQSS EIR found that impacts to biological resources as a result of a project on the site would be level of significant after mitigation (NEQSS EIR Vol 1. 3.11-7). The proposed project would not change the conclusion of these analyses.

As mentioned in the Project Description above, the Campus Landscape Architect has advised that there are no specimen trees on the site. The Campus Landscape Architect has advised that to reduce the significance of the loss of non-specimen trees and other possible effects on the campus landscape, the landscape plan for the new building include plantings of evergreen trees and be designed to increase the foliage coverage around the building. Additionally street trees would be replaced by the project and new trees would be compatible with the City of Berkeley street tree palate to be consistent with other plantings in the area and comply with applicable City and regional guidelines (NEQSS Mitigation Measures SODA 4.5-1d and SODA 4.5-1f).

The proposed project, including construction and operation of the new Jacobs Hall, would not result in new or more severe impacts than analyzed in the 2020 LRDP FEIR, nor contribute to cumulatively significant adverse effects upon biological resources. The project would comply with all relevant biology mitigation measures from the 2020 LRDP EIR. The 2020 LRDP EIR found that the Adjacent Blocks, including the Project site, 'occur in urbanized areas with little or no remaining natural vegetation and limited wildlife habitat values. No sensitive natural communities, special status species, wetlands or important wildlife movement corridors occur in these zones' (2020 LRDP EIR Vol 1, 4.3-18 to 4.3-19). A pre-construction nesting survey would be completed prior to construction, consistent with LRDP Mitigation Measure BIO-1-a (see Table 5). As with other projects at urban sites, any infrastructure activities associated with servicing the project site would occur in previously developed street and roadway sites only.

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to biological resources that were not adequately analyzed and, as necessary, mitigated, and no new information is available.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, incorporating biology best practices and mitigation measures, in combination with other foreseeable projects, would not have a significant adverse effect on special-status species or sensitive natural communities, jurisdictional wetlands, wildlife corridors and movement opportunities, or wildlife nursery sites (2020 LRDP FEIR Vol 1 p. 4.3-35-4.3-37). The proposed project would not alter these conclusions.

## CLIMATE CHANGE

As previously explained herein, the 2020 LRDP was amended to reference the campus climate action plan, a stringent campus greenhouse gas reduction strategy, in July, 2009, and the 2020 LRDP EIR was amended to consider how implementation of the 2020 LRDP impacts climate change / greenhouse gas emissions. 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). As noted above, the key change to circumstances surrounding the 2020 LRDP with regard to greenhouse gases is a beneficial one: namely, in November 2013 UC Berkeley announced that it has met its carbon reduction targets, and would be establishing new targets (see <http://newscenter.berkeley.edu/2013/11/12/two-years-early-uc-berkeley-meets-its-carbon-reduction-target/>).

As part of the LRDP EIR addendum #5 prepared in accordance with CEQA to consider the LRDP climate change amendment, construction period (including demolition) emissions for UC Berkeley were calculated, assuming 1 million gross square feet of new space under development, or 45.9 acres under construction at UC Berkeley over a twelve-month period. Modeling shows that annual CO<sub>2</sub> emissions of 1,264 metric tons results from construction activities of this scale. For comparison, emissions associated with campus water consumption were 1,955 metric tons of carbon dioxide equivalent in 2007. Construction at the project site would be well within the one million square feet of new space under development analyzed in the 2020 LRDP EIR and 2020 LRDP EIR Addendum #5.

The project would not be a major source of greenhouse gas emissions. The project is planned, designed and would be managed to comply with the University Policy on Sustainable Practices, and incorporates best practices and specific design elements outlined in Section II as partial implementation, including reuse of recycling of construction materials, use of operable windows, low flow toilets, and commissioning of building systems. Further, the project implements the 2020 LRDP as amended and would not generate greenhouse gas emissions in a manner that significantly impacts the environment. Lead agencies, including municipalities, counties, and universities, have adopted climate action plans in an effort to meet state mandated greenhouse gas reduction targets through comprehensive efforts. Where the focus of CEQA is commonly on the physical impact of a single new development proposal, on-going pre-existing operations are often the greatest contributors of greenhouse gas emissions.

Cumulatively, the 2020 LRDP EIR determined that the impact of implementation of the 2020 LRDP, with incorporation of all best practices and implementation of UC Berkeley's Climate Action Plan, on cumulative climate change would be less than significant. (2020 LRDP EIR Addendum #5, page 55). The proposed project would not alter these conclusions.

## CULTURAL RESOURCES

In the 2020 LRDP EIR, the numerous historical resources located within the geographic scope of the 2020 LRDP were divided into two separate categories: Primary Historical Resources and Secondary Historical Resources. Primary Historical Resources include those listed on the California Register of Historical Resources. 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. Historic resources covered here include buildings, sites (which include

landscapes), structures (such as bridges), and objects (such as Founders' Rock). There are no primary or secondary resources on the project site.

The 2020 LRDP FEIR noted that under certain circumstances, projects developed under the 2020 LRDP could cause substantial adverse changes in the significance of historical resources, which would remain a significant and unavoidable impact despite recordation of the resource (2020 LRDP FEIR Vol. 1, 4.455).

The Computer Science/College of Engineering EIR and NEQSS EIR incorporated mitigations to address potential to disturb archaeological resources during construction, and determined that impacts would be less than significant through incorporation of the mitigation measures. Existing conditions relevant to these impact conclusions have remained unchanged since the preparation of the NEQSS EIR. The project parameters are unchanged and mitigation measures to minimize the impacts would be included in the proposed project. Therefore, no additional analysis of the cultural and historic resources impacts of the project is necessary.

The project site is within a zone of possible sensitive pre-historic archaeological resources along the natural watercourse of Strawberry Creek. However, the project site landform has been substantially modified over the years by the construction of Etcheverry and Soda Halls. Given this, archaeological materials would not be anticipated at the project site; nonetheless, contractors would be notified that they are required to watch for potential archaeological artifacts and to notify UC Berkeley if any are found, in accordance with best practices. See 2020 LRDP EIR Mitigation Measures and Best Practices incorporated into the project, item CUL-4-a through c; NEQSS EIR Mitigation Measures SODA 4.3-1 and 4.3-2.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, incorporating cultural resource best practices and mitigation measures, in combination with other foreseeable projects, could contribute to the cumulative reduction and/or degradation of the resource base of historical or archaeological resources, a significant and unavoidable impact (2020 LRDP FEIR Vol 1 p. 4.4-61). The proposed project would not alter these conclusions.

## **GEOLOGY, SEISMICITY AND SOILS**

The project site is located on the north side of the Campus Park. The site is roughly 130 feet by 75 feet, and the existing surface grades range generally slope down toward the west across the proposed building footprint. Etcheverry Hall has a two-story (approximately 30-foot-deep) basement that extends beneath the southern portion of the proposed Jacobs Hall site. Within the proposed footprint of Jacobs Hall is an existing sand-covered volleyball court that is approximately at the same level as the plaza on the east side of Etcheverry Hall. To the north and east of the volleyball court are landscaped areas that slope up towards the north and east towards Ridge Road and Leroy Avenue. A concrete retaining wall abuts the east side of the site adjacent to the Leroy Avenue sidewalk.

The project site is underlain by approximately 12 to 33 feet of artificial fill and native alluvial soils over Franciscan sandstone and shale bedrock (A3GEO, Draft Geotechnical Investigation Report, August 20, 2013). The deeper fills exist on the south side of the site behind the Etcheverry Hall basement wall.

Subsurface drains currently exist beneath and surrounding the Etcheverry Hall basement. Groundwater was measured in a piezometer (monitoring well) installed by A3GEO at a depth of 31 feet below the ground surface in August of 2013. The draft geotechnical report concludes that the potential hazard due to soil



liquefaction at the Jacobs Hall site is low. The final geotechnical report will include recommendations that would be incorporated into the final project design to address all soils and seismic safety concerns.

The site is located approximately 800 feet southwest of the main trace of the Hayward fault (Lienkaemper, 1992) and is not located within an Alquist-Priolo Earthquake Fault Zone (AP Zone).

The San Francisco Bay Area region is characterized by a high level of seismic activity. Historically, this region has experienced strong ground shaking from large earthquakes, and will continue to do so in the future. The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant impacts in the area of geology, seismicity, or soils (2020 LRDP FEIR Vol. 1 p. 4.517 to 4.524). Planning and design for project has incorporated all applicable Geology, Seismicity and Soils mitigation measures and best practices.

The Computer Science/College of Engineering EIR and NEQSS EIR also determined that the project, through incorporation of mitigation measures, would result in a less than significant impact to geology, soils and seismicity (NEQSS EIR, Vol. 1, p 4.9-9).

The building would be designed to provide a life-safety (LS) level of performance for the design basis earthquake loading, which is consistent with a hazard level that has a 10 percent probability of exceedance in 50 years. Designed to these criteria, the structure would have a “Good” rating.

The project was reviewed by the campus Seismic Review Committee. The structural system consists of a three-story steel structure. The current structural design utilizes buckling restrained braced frames as the lateral force resisting system for the upper two stories, and concrete shears walls at the first story. The SRC expressed no major concerns or objections; ~~further review would occur later in January 2014.~~

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to geology, seismicity and soils that were not adequately analyzed and, as necessary, mitigated, and no new information is available.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, incorporating geology, seismicity and soils best practices and mitigation measures, in combination with other foreseeable projects, would have less than significant impacts due to fault rupture, seismic ground shaking or ground failure, landslides, soil erosion, or risk due to expansive soils or unstable soils or geologic units (2020 LRDP FEIR Vol 1 p. 4.5-23-24). The proposed project would not alter these conclusions.

## GREENHOUSE GASES

See discussion under Climate Change, above.

## HAZARDOUS MATERIALS

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant hazardous materials related impacts (2020 LRDP FEIR Vol. 1 p. 4.620 to 4.635).

The proposed project entails construction and operation to house an existing program that is not a significant source or user of hazardous materials. The project therefore would not create a new significant hazard not

analyzed in the 2020 LRDP FEIR, and would not result in more severe significant impacts than analyzed in the 2020 LRDP FEIR. Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to hazardous materials that were not adequately analyzed and, as necessary, mitigated, and no new information is available. No additional mitigation measures have been identified that would further lessen any previously identified impact, and no additional analysis is required.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, incorporating hazardous materials best practices and mitigation measures, in combination with other foreseeable projects, would not significantly increase hazards to the public or the environment associated with the use and transport of hazardous materials and the generation of hazardous waste (2020 LRDP FEIR Vol 1 p. 4.6-33). The proposed project would not alter these conclusions.

## HYDROLOGY AND WATER QUALITY

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant impacts upon hydrology and water quality (2020 LRDP FEIR Vol. 1, 4.724 to 4.735) Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to hydrology and water quality that were not adequately analyzed and, as necessary, mitigated, and no new information is available.

New construction on the project site would expand the area of impervious coverage. The proposed project would achieve net zero increase in storm water runoff in accordance with the 2020 LRDP EIR by retaining the change in runoff between pre and post development. Based on the regional soil map, the site soil are not suitable for infiltration. Several storm water retention strategies are under consideration including flow-through planters and bio-swales. The current site plan is approximately 10,670 square feet. The existing condition has 3,986 SF of impervious area and 6,684 SF of pervious area. The proposed condition has 7,870 SF of impervious area and 2,800 SF of pervious area. The net increase in impervious area is 3,884 SF or approximately 36%. The net increase in runoff due to the additional impervious surface area would be mitigated and detained in on-site flow-through planters with an estimated no net increase in the rate of runoff. The detention volume has been determined to be 155 cubic feet (CF) based on the Section 5.1 of the C.3 Storm Water Handbook. Where feasible, hardscape has been minimized and porous paving has been used (see NEQSS EIR Mitigation Measure SODA 4.8-1b, 4.8-4c, 4.10-9c).

Landscape planters have been provided along the existing Soda Hall façade to capture roof run-off. These planters would have a prescribed soil profile best suited to retain water. (See NEQSS EIR Mitigation Measure SODA 4.8-1b) Plant species would be selected that tolerate the variable conditions of such an environment. Several storm water retention strategies are under consideration. Water conservation measures within the landscape include the following: deep mulching, efficient irrigation, and appropriate drought tolerant species. Drip irrigation, “hydro zoning” (the grouping and irrigation of species with similar water requirements), and a “weather-based” controller, greatly reduce irrigation water use. (See NEQSS EIR Mitigation Measure SODA 4.10-5a, 4.10-9b)

The proposed project would incorporate applicable LRDP mitigation measures and best practices and it would be subject to review by the campus department of Environment, Health and Safety to ensure



construction practices reduce groundwater or dewatering impacts. As designed, runoff from new hardscape would be filtered to reduce pollutant loading in accordance with regulatory standards. The proposed project would not alter 2020 LRDP FEIR conclusions with respect to hydrology and water quality. No additional mitigation measures have been identified that would further lessen the previously identified impacts, and no additional analysis is required.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP, incorporating hydrology best practices and mitigation measures, in combination with other foreseeable projects, would not significantly increase surface runoff, wastewater discharge, would not substantially lower the groundwater table, would not violate existing surface water quality standards or wastewater discharge requirements, would not substantially contribute sediments or pollutants to storm water runoff, would not contribute a cumulatively considerable amount to exceedances of the capacity of storm- water drainage systems, and would not contribute a cumulatively considerable amount to impedances or redirection of flows within the 100 year flood hazard area (2020 LRDP FEIR Vol 1 p. 4.7-33-35). The proposed project would not alter these conclusions.

## LAND USE

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant land use impacts (2020 LRDP FEIR Vol. 1, 4.815 to 4.821). The 2020 LRDP Location Guidelines prioritize uses by land use zone; the site for the proposed project does not conform to the 2020 LRDP location guidelines, but the project site's proximity to other academic uses in Soda and Etcheverry Halls is well suited for additional academic uses. The project would generally conform to the height and setback guidelines from the City to extents feasible to reduce other potential conflicts.

The project site's use for academic facilities was considered in the NEQSS EIR, and Mitigation Measure SODA 4.1-3 was developed to reduce potential impacts by reviewing the project's design with particular attention to privacy for neighboring residential uses, noise, light, glare, aesthetics and circulation. The NEQSS EIR (and previously the Computer Science/College of Engineer Building EIR) found that development on the project site was incompatible with City zoning, but that mitigation measures related to the design of the building could reduce potential land use conflicts to a less than significant level (See LRDP Continuing Best Practice LU-2, and AESTHETICS discussion above) (NEQSS EIR Vol.1, p 3.2-8). As mentioned under the AESTHETICS discussion, the project was reviewed by the Campus and City Design Review Committees which found the design of the building to be respectful of the surrounding uses. In relevant part, the NEQSS EIR included the following mitigation by reference:

SODA 4.1-3 *As part of the final design of the project, the architects will be directed to reduce any remaining land use compatibility impacts of the project to the extent feasible. In the final design of the project, design elements will be considered by the architects to further reduce impacts on adjacent land uses. These will include retention of privacy for neighboring residential uses, design of the building to reduce noise, light, glare and similar design considerations. Mitigation measures for other impacts (such as visual quality and aesthetics, circulation and parking, and noise) will also serve to reduce further any remaining land use impacts.*

The project architects presented their proposed solutions to the Campus Design Review Committee in July, August, October and November of 2013; the Committee determined that the project design was appropriate

and compatible for the site and with the surrounding institutional and residential uses. The City of Berkeley Design Review Committee reviewed the project in September and November 2013 and concluded that the project was compatible for the site and appropriately designed. Comments received on the project's design in the earlier Design Review meetings were incorporated into the project as feasible and relevant changes were presented at the November meetings. In November, both committees had favorable reception to the project.

The project would incorporate 2020 LRDP EIR Mitigation Measures AES 3a and 3b to reduce potential light impacts on the adjacent areas. As a design studio building, the project does not include any elements that are expected to substantially increase noise beyond an ambient level of additional people on the street. Building mechanical systems would be provided through Soda Hall and not be apparent on the north side of the building. See NOISE for more information on potential noise impacts.

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to land use that were not adequately analyzed and, as necessary, mitigated, and no new information is available. No additional mitigation measures have been identified that would further lessen the previously identified impact, and no additional analysis is required.

Cumulatively, the 2020 LRDP EIR noted that projects implementing the 2020 LRDP would not conflict with local land use regulations such that a significant cumulative in- compatibility is created with adjacent land uses, nor conflict with applicable policies adopted for the purpose of avoiding or mitigating an environmental impact (2020 LRDP FEIR Vol 1 p. 4.8-20). The project would not alter these conclusions.

## NOISE

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, even with incorporation of existing best practices and 2020 LRDP FEIR mitigation measures, could result in significant noise impacts resulting from demolition and construction activities (2020 LRDP FEIR Vol. 1, 4.916 to 4.925). The NEQSS EIR and Computer Science/College of Engineering Building EIR also identified implementation of a project on the site would result in significant and unavoidable impacts related to temporary ambient noise increases during construction even after implementation of the required mitigation (NEQSS EIR, Vol. 1, p 3.8-10). Prior to commencement of noisy construction, UC Berkeley posts construction notices, and would contact project neighbors to provide them with construction information prior to start of construction, implementing 2020 LRDP Continuing Best Practice NOI-4-b (See also NEQSS EIR Mitigation Measures SODA 4.6-2a-2k).

As described in the Project Description, the building would house academic space for studio classrooms. These studios may include some equipment, such as three-dimensional printers, to support the proposed academic offerings (e.g., engineering design and prototyping). This equipment would be fully enclosed within the building to ensure that noise would not exceed the City of Berkeley Noise Ordinance limits (2020 LRDP Mitigation Measure Continuing Best Practice NOI-2).

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to noise that were not adequately analyzed and, as necessary, mitigated, and no new information is available. No additional mitigation measures have been identified that would further lessen the previously identified impact, and no additional analysis is required.

Cumulatively, the 2020 LRDP EIR generally noted that projects implementing the 2020 LRDP, incorporating noise best practices and mitigation measures, in combination with other foreseeable projects, would not result in a substantial permanent, temporary or periodic increase in ambient noise levels, or expose people to or generate excessive ground-borne vibration or ground borne noise levels (2020 LRDP FEIR Vol 1 p. 4.6-24). The 2020 LRDP EIR noted that implementation of the 2020 LRDP would expose people to noise levels in excess of established standards by way of construction noise, a significant and unavoidable impact (2020 LRDP FEIR Vol 1 p. 4.6-24). The project would not alter these conclusions.

## POPULATION AND HOUSING

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant impacts related to population and housing (2020 LRDP FEIR Vol. 1 p. 4.1010 to 4.1019). The proposed project would not result in new or more severe impacts than analyzed in the 2020 LRDP FEIR. The proposal does not add population and does not involve housing.

As mentioned in the project description, the building includes only a small amount of office space and would not house additional faculty or staff. This is different than the previous project proposed for the site, which included space for up to 125 additional faculty or staff. Therefore, the proposed project would be less intense than what was considered in the NEQSS EIR.

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to population and housing that were not adequately analyzed and, as necessary, mitigated, and no new information is available. No additional mitigation measures have been identified that would further lessen the previously identified impacts, and no additional analysis is required.

The 2020 LRDP EIR concluded that implementation of the 2020 LRDP in combination with other reasonably foreseeable projects would induce population growth in the Bay Area, but the contribution of the 2020 LRDP would not be cumulatively considerable (2020 LRDP FEIR Vol 1 p. 4.10-19). The proposed project would not alter this conclusion.

## PUBLIC SERVICES

Police services for campus properties are primarily provided by the University of California Police Department (UCPD). The Berkeley Fire Department (BFD) provides fire protection and emergency medical services to the western half of the Campus Park and to the Adjacent Blocks and Southside. In May of 2005 the Chancellor and the Mayor of the City of Berkeley signed an agreement earmarking \$600,000 annually in campus funds to the City of Berkeley to support emergency and fire protection. UC Berkeley directly employs 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.

In cooperation with the campus fire marshal, UC Berkeley Capital Projects is conducting water pressure testing to ensure sufficient water pressure for the project. The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant impacts upon public services (2020 LRDP FEIR Vol.

1, 4.1111 to 4.1115; 4.1110; 4.1126 to 4.1128; 4.1132 to 4.1133). The proposed project does not alter assumptions of the 2020 LRDP with regard to recreational facilities, emergency access and emergency services demand, or schools. The proposed project would not result in new or more severe impacts than analyzed in the 2020 LRDP FEIR.

The NEQSS EIR included several mitigation measures related to public services that relate to similar mitigation measures from the 2020 LRDP EIR incorporated into the project (See NEQSS EIR Mitigation Measures SODA 4.10-1, 4.10-2, 4.10-3, 4.10-4).

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to public services that were not adequately analyzed and, as necessary, mitigated, and no new information is available. No additional mitigation measures have been identified that would further lessen the previously identified impacts, and no additional analysis is required.

The 2020 LRDP EIR concluded that implementation of the 2020 LRDP would not contribute to cumulatively significant adverse public services effects related to construction of public service facilities, deterioration of recreation facilities, exposure to risk of fires, interference with emergency response and evacuation, or emergency access constraints (2020 LRDP FEIR Vol 1 p. 4.11-32 to 33). The proposed project would not alter this conclusion.

## TRAFFIC AND TRANSPORTATION

Both vehicular and bicycle access to Jacobs Hall would be via Ridge Road and Le Roy Avenue. The project would install new bicycle parking for 10 percent of the new building's population on the Etcheverry walkway between Jacobs Hall and Etcheverry Hall (approximately 34 bicycle parking spaces). No parking would be provided on site; however, UC Berkeley parking is provided one block to the north and south in the Upper and Lower Hearst Parking Structures. There are existing ADA parking spaces located along Le Roy Avenue. Service deliveries would occur in the existing service alley located to the west of Etcheverry Hall, where materials would be unloaded and hand carted to the new building via internal elevators in Etcheverry and the entrance to Jacobs Hall located on the Etcheverry walkway.

As noted in the 2020 LRDP EIR (see page F.1-8 and F.1-9 in Volume 2) the primary factor for estimating vehicle trip generation is an anticipated increase in population, but the number of parking spaces provided also contributes to the overall project trip generation studied. The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would as a whole result in some significant impacts upon traffic and transportation, specifically upon indicated intersections and roadways, due to increases in population and parking supply (2020 LRDP FEIR Vol. 1, 4.12-48 to 4.12-54; Vol. 2 Section F). The proposed project does not include a component adding parking or employee population; therefore, no vehicle or parking impacts are anticipated specific to the project.

The NEQSS EIR did identify a number of transportation related impacts associated with implementation of the NEQSS projects. In particular, the EIR identified potential impacts to shuttle capacity to the northeast campus, pedestrian safety crossing Hearst and Gayley Road, access exiting East Gate, and construction traffic. Since the NEQSS EIR, UC Berkeley Parking & Transportation has monitored and improved service to campus shuttle routes that travel to the northeast campus, and there are no capacity issues. The project

would not increase people in the north east campus and would primarily shift some people who now travel to other areas of the northeast campus to Jacobs Hall; therefore, the project is not expected to have a project-specific impact to shuttle service. Additional Parking & Transportation works with local agencies to support transit service (2020 LRDP EIR Mitigation TRA-5).

The project would increase the number of people crossing Hearst Avenue at Le Roy Avenue. Consistent with NEQSS EIR Mitigation Measure TRAF-2, the campus would install pedestrian safety enhancements at the intersection. A new traffic signal and curb extensions were identified as the preferred pedestrian improvements for the intersection as part of the Hearst Avenue Complete Streets Study (2012), which reviewed pedestrian and bicycle safety along Hearst Avenue and recommended safety improvements for the Hearst corridor from Downtown Berkeley to Gayley Road. This improvement is consistent with the 2020 LRDP EIR's mitigation measures related to campus improvements for pedestrians and bicyclists at the periphery roadways.

Consistent with the 2020 LRDP FEIR and NEQSS EIR, the project would incorporate a number of mitigation measures to reduce the potential impacts of construction traffic (See 2020 LRDP EIR Mitigation Measures TRA-3a to 3d; NEQSS EIR Mitigation Measures TRAF-1, TRAF-3, SODA-4.4-1a to 1d).

No additional mitigation measures have been identified that would further lessen the previously identified impacts, and no additional analysis is required.

Since certification of the 2020 LRDP FEIR, additional parking supply and demand studies have been completed that could alter some of the parking assumptions in the 2020 LRDP; however, at this time, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to transportation that were not adequately analyzed and, as necessary, mitigated, and no other new information is available. No additional mitigation measures have been identified that would further lessen the previously identified impact, and no additional analysis is required.

The 2020 LRDP EIR concluded that cumulative construction-related traffic and parking may exacerbate parking capacity concerns, congestion conditions or create unsafe conditions for pedestrians or bicyclists, but with on-going implementation of best practices and mitigation measures by all agencies, construction-related traffic impacts would not be significant (2020 LRDP FEIR Vol 1 p. 4.12-59). The proposed project would not alter the cumulative impact conclusions of the 2020 LRDP FEIR or NEQSS FEIR.

## UTILITIES AND SERVICE SYSTEMS

The project would replace incorporate modern water reduction technology, including low flow fixtures.

The 2020 LRDP EIR also noted localized clusters of new development could exceed the capacity of individual sub-basins, and incorporated measures to minimize possible collection capacity impacts, including project-by-project analysis of sewer system capacity considerations (Best Practices USS-2.1-b and USS-2.1-d through USS-2.1-e).

In 1990 the City of Berkeley agreed to upgrade its sewer system as required to serve development proposed by the 1990 LRDP. UC Berkeley paid more than \$3 million to the city to support these improvements. 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 campus funds to the City of Berkeley to

support sewer and storm drain infrastructure projects. The project a subset of the total net new academic and support program space anticipated under the 2020 LRDP EIR.

The project represents a small percent of the total net new academic and support program space anticipated under the 2020 LRDP, and the 2020 LRDP EIR found this growth is not anticipated to result in the need for new or altered energy production and/or transmission facilities (2020 LRDP EIR Vol 1, 4.13-25). The project is designed to exceed Title 24 energy conservation requirements by 20 percent and incorporates energy efficient design elements. Construction-related best practices would guide the construction management plan including truck routing to reduce truck trips. In addition, to meet campus recycling goals, the project would provide sufficient space and equipment to promote recycling.

Additionally, the NEQSS EIR and Computer Science/College of Engineering Building EIR determined that a project on the site would have a less than significant impact to utilities and services (NEQSS EIR, Vol. 1, p 3.12-16). Existing conditions relevant to these impact conclusions have remained unchanged since the preparation of the EIR that addressed the project. The project design parameters are unchanged, and mitigation measures to minimize these impacts are included in the proposed project, as described above.

The 2020 LRDP FEIR concluded that projects implemented as part of the 2020 LRDP, incorporating existing best practices and 2020 LRDP FEIR mitigation measures, would not result in new significant utilities and service systems impacts (2020 LRDP FEIR Vol. 1, 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).

Since certification of the 2020 LRDP FEIR, there have been no substantial changes to the 2020 LRDP or to the circumstances surrounding 2020 LRDP development with respect to utilities and service systems that were not adequately analyzed and, as necessary, mitigated, and no new information is available. No additional mitigation measures have been identified that would further lessen the previously identified impacts, and no additional analysis is required.

The proposed building was analyzed in the NEQSS EIR and Computer Science/College of Engineering Building EIR. Impacts to incremental increased demand for police and fire services and temporary disruption of access for emergency and service vehicles, as well as public exposure to potentially unsafe conditions in the construction area, were found to be less than significant.

Conditions relevant to these conclusions have remained unchanged since the preparation of the EIR that addressed the project. The project design parameters are unchanged and mitigation measures to minimize impacts are included in the proposed project, as described above. Therefore, no additional analysis is necessary.

Based on the foregoing, the proposed project would not result in new or more severe significant impacts not previously addressed in the 2020 LRDP EIR or NEQSS EIR; none of the circumstances that would require preparation of a subsequent or supplemental EIR under CEQA exists.

The 2020 LRDP EIR evaluated whether the 2020 LRDP, in combination with other University and non-University projects, would result in cumulative impacts on utilities and service systems, concluding that the potential need for new or altered conveyance systems for wastewater or stormwater would not have



significant impacts (2020 LRDP FEIR Vol 1 p. 4.13-28). The proposed project would not alter the cumulative impact conclusions of the 2020 LRDP FEIR.

## **V. NEQSS EIR MITIGATION MEASURES, 2020 LRDP EIR MITIGATION MEASURES AND CONTINUING BEST PRACTICES INCORPORATED INTO PROJECT AS PROPOSED**

### **Aesthetics**

**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. (Supersedes NEQSS EIR Mitigation Measures 1990 LRDP 4.2-1, 1990 LRDP 4.3-3a, 1990 LRDP 4.3-3b, and SODA 4.2-1a)

**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 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. (Supersedes NEQSS Mitigation Measure SODA 4.2-3c)

**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.

**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 to minimize atmospheric light pollution. The only exception to this principle would be in those areas within the Campus Park where such features would be incompatible with the visual and/or historic character of the area. (Supersedes NEQSS EIR Mitigation Measures 1990 LRDP 4.2-3b, 1990 LRDP 4.2-11, SODA 4.2-3d and SODA 4.2-4)

**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. (Supersedes NEQSS EIR Mitigation Measures 1990 LRDP 4.2-3b and 4.2-11)

**NEQSS Mitigation Measure SODA 4.2-1(b):** Street trees which are part of the project design will serve to mitigate the visual impact on the streetscape along Le Roy Avenue, Hearst Avenue, and Ridge Road created by the proposed project. Displaced redwoods will be replaced on the site with redwoods or similar tree types wherever feasible. A mixture of ornamental and native landscaping will be incorporated into the landscaping



plan to break up the continuity of the streetscape along Le Roy Avenue and provide a link to the traditional landscaping of the surrounding residential neighborhood. Redwood, oak, or evergreen trees will be used as much as possible to provide varying height levels and make the landscaping look more natural, in keeping with the hillside neighborhood.

**NEQSS Mitigation Measure SODA 4.2-3(a):** The exterior surfaces of the building would be selected to be compatible with architectural features and colors of exterior materials used for existing structures on adjacent sites. Green tile with brown accents has been proposed to tie the project to the dark brown shingle buildings and the surrounding neighborhood.

**NEQSS Mitigation Measure SODA 4.2-3(b):** The landscaping and architectural style of the proposed College of Engineering addition will be designed specifically to create a stronger visual link between the University buildings and the surrounding neighborhood. Features and elements to be taken into account during the design phase would include, but not be limited to, building mass and form, building proportion, roof profile, architectural detail and fenestration, and the texture, color, and quality of the building materials. Redwoods and other vegetation typical of the hillside neighborhood will be used in the landscaping and the building will be designed imaginatively to incorporate as many of the existing trees as possible and to provide a transition in the architectural style and building material between the Computer Science Building (Phase I) and the residences to the north and east.

### Air Quality

**Continuing Best Practice AIR-1:** UC Berkeley shall continue to implement the same or equivalent alternative transit programs, striving to improve the campus mode split and reduce the use of single occupant vehicles among students, staff, faculty and visitors to campus.

**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 (nontoxic) 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.

(Supersedes NEQSS Mitigation Measure 1990 LRDP 4.9-1)

**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.

(Supersedes NEQSS Mitigation Measure 1990 LRDP 4.9-1, SODA 4.9-1a)

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.9-2, SODA 4.9-2)

**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.

(Supersedes NEQSS Mitigation Measure SODA 4.9-2)

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

### **Biological Resources**

**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). (Supersedes NEQSS EIR Mitigation Measure 1990 LRDP 4.4-7)

**LRDP Mitigation Measure BIO-1-b:** UC Berkeley will, to the full feasible extent, avoid the remote potential for direct mortality of special-status bats and destruction of maternal roosts. A pre-construction roosting survey for special-status bat species, covering the project site and any affected buildings, would be conducted during the months of March through August prior to commencement of any project that may impact suitable maternal roosting 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 roosting habitat. In the Hill Campus, surveys would be conducted for new construction projects prior to grading, vegetation removal, and remodel or demolition of buildings with isolated attics and other suitable roosting habitat. In the Campus Park, surveys would be conducted for construction projects prior to remodel or demolition of buildings with isolated attics. If any maternal roosts are detected during the months of March through August, construction activities would not commence, or would continue only after the roost is protected by an adequate setback approved by a qualified biologist. To the full feasible extent, the maternal roost location would be preserved, and alteration would only be allowed if a qualified biologist verifies that bats have completed rearing young, that the juveniles are foraging independently and capable of survival, and bats have been subsequently passively excluded from the roost location. A pre-construction survey is not required if construction activities commence outside the maternal roosting season (September through February). (Supersedes NEQSS EIR Mitigation Measure 1990 LRDP 4.4-7)

**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. (Supersedes NEQSS EIR Mitigation Measure 1990 LRDP 4.4-1a and 4.4-1b)

**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. Vegetation in the Hill Campus requires continuing management for fire safety, habitat enhancement, and other objectives. This may include removal of mature trees such as native live oaks and non-native plantings of eucalyptus and pine. (Supersedes NEQSS EIR Mitigation Measure 1990 LRDP 4.4-1b and SODA 4.5-1e)

**NEQSS Mitigation Measure SODA 4.5-1b:** The trees which are to be preserved in either the Phase I or Phase II plans, as shown in Figure 4.5-2 [of the NEQSS EIR], would be protected from impacts during construction phases of the project. No grading, filling, excavation, trenching, or operation or storage of construction materials or equipment should be undertaken within the area beneath the tree canopies (root zone). If necessary, barriers to protect vegetation from construction damage will be installed.

**NEQSS Mitigation Measure SODA 4.5-1c:** Any trees removed during the construction phases of either the Phase I or Phase II projects would either be transplanted or replaced with adequately sized specimens appropriate for the environmental conditions of the area, and consistent with the landscape plans for the project.

**NEQSS Mitigation Measure SODA 4.5-1d:** The design of the College of Engineering additions will be required to incorporate the existing redwoods. ~~Landscaping of the roof top plaza will incorporate plantings consistent with the existing streetscape of Le Roy Avenue as much as possible.~~ Street plantings utilizing typical trees of the area will be used wherever possible to provide transition between the landscaping on Campus and the surrounding neighborhood, especially along the northern and eastern boundaries of the site.

**NEQSS Mitigation Measure SODA 4.5-1f:** The proposed planting will comply with the East Bay Municipal Utility District [EBMUD] guidelines for water usage and irrigation. ~~Street trees along Hearst will be consistent with the type, spacing, and location of other plantings along this corridor.~~ Planting grates and resting areas below the sidewalk shall be designed to minimize root damage to sidewalks.

### Climate Change

**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.

**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.

**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.

### Cultural Resources

**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.

**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. (Supersedes NEQSS Mitigation Measures 1990 LRDP 4.3-1, SODA 4.3-1)

**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. (Supersedes NEQSS Mitigation Measures 1990 LRDP 4.3-2, SODA 4.3-2)

**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 LRDP Mitigation Measure CUL-4-b.

**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.

### **Geology, Seismicity and Soils**

**Continuing Best Practice GEO-1-a:** UC Berkeley will continue to comply with the CBC and the *University Policy on Seismic Safety*. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.7-2a and 2b, SODA 4.7-3b, SODA 4.7-4b, SODA 4.7-5a)

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.7-2c, SODA 4.7-3c)

**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*. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.7-2a and 2b)

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.7-3)

**Continuing Best Practice GEO-1-f:** Through the Office of Emergency Preparedness, UC Berkeley will continue to implement programs and projects in emergency planning, training, response, and recovery. Each campus building housing Berkeley students, faculty and staff has a Building Coordinator who prepares building response plans and coordinates education and planning for all building occupants.

**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. (Supersedes NEQSS Mitigation Measure SODA 4.7-3c)

**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. (Supersedes NEQSS Mitigation Measure SODA 4.7-3c)

**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. (Supersedes NEQSS Mitigation Measure SODA 4.7-1b and SODA 4.7-2a and 2b, SODA 4.7-5a, 5b and 5c)

### **Hazardous Materials**

**Continuing Best Practice HAZ-1:** UC Berkeley shall continue to implement the same (or equivalent) health and safety plans, programs, practices and procedures related to the use, storage, disposal, or transportation of hazardous materials and wastes (including chemical, radioactive, and biohazardous materials and waste) during the 2020 LRDP planning horizon. These include, but are not necessarily limited to, requirements for safe transportation of hazardous materials, EH&S training programs, the Hazard Communication Program, publication and promulgation of drain disposal guidelines, the requirement that laboratories have Chemical Hygiene Plans, the Chemical Inventory Database, the Toxic Use Reduction Program, the Aboveground Storage Tank Spill Prevention Control and Countermeasure Plan, monitoring of underground storage tanks, hazardous waste disposal policies, the Chemical Exchange Program, the Hazardous Waste Minimization Program, the Biosafety Program, the Medical Waste Management Program, and the Radiation Safety Program. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar health and safety protection measures. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.11-1)

**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.

**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 building materials and each project shall address this requirement in all construction. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.11-2b)

### Hydrology and Water Quality

**Continuing Best Practice 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. (Supersedes NEQSS Mitigation Measure HYDRO 2, 1990 LRDP 4.8-3a)

**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 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. Stormwater Pollution Prevention Plans 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. (Supersedes NEQSS Mitigation Measures SODA 4.8-3a-d)

**Continuing Best Practice HYD-1-c:** UC Berkeley shall maintain a campus-wide educational program regarding safe use and disposal of facilities maintenance chemicals and laboratory chemicals, to prevent discharge of these pollutants to Strawberry Creek and the campus storm drains. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.8-4b)

**Continuing Best Practice HYD-1-d:** UC Berkeley shall continue to implement the campus Drain Disposal Policy and Drain Disposal Guidelines which provide inspection, training, and oversight on use of the drains for chemical disposal for academic and research laboratories as well as shops and physical plant operations, to prevent harm to the sanitary sewer system. (Supersedes NEQSS Mitigation Measure HYDRO 2)

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.8-1a)

**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 that open or porous paving systems be included in project designs wherever feasible, to minimize impervious surfaces and absorb runoff. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.8-1c, SODA 4.8-1b, SODA 4.8-4c)

**Continuing Best Practice HYD-3:** In addition to Hydrology Continuing 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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.8-1a, SODA 4.8-1c, SODA 4.8-1d)

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.8-2a, 1990 LRDP 4.8-4c and 4d, SODA 4.8-1a, SODA 4.8-4a and 4b)

**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. (Supersedes NEQSS Mitigation Measure HYDRO 3)

### Land Use

**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.

**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.

## Noise

**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. (Supersedes NEQSS Mitigation Measure SODA 4.6-1, SODA 4.6-2a, SODA 4.6-2b; NEQSS NOISE-2)

**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.

(Supersedes NEQSS Mitigation Measure 1990 LRDP 4.6-1a, 1b and 1c; SODA 4.6-2a through k; NEQSS NOISE-3a)

**Continuing Best Practice NOI-4-b:** UC Berkeley will 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. (Supersedes NEQSS Mitigation Measure SODA 4.6-2g; NEQSS NOISE-3c; NEQSS NOISE-4b)

**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.

(Supersedes NEQSS Mitigation Measure 1990 LRDP 4.6-1a, 1b and 1c; SODA 4.6-2a through k; NEQSS NOISE-1; NEQSS NOISE-3b)

### **Public Services**

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.12-1; 1990 LRDP 4.12-4; SODA 4.10-1b)

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.12-1; 1990 LRDP 4.12-3c; 1990 LRDP 4.12-4; 1990 LRDP 4.12-2a and 2b; SODA 4.10-1a; SODA 4.10-3b; SODA 4.10-1b)

**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 would ensure the selected alternative travel routes are not impeded by UC Berkeley activities. (Supersedes NEQSS Mitigation Measure SODA 4.10-4a)

**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. (Supersedes NEQSS Mitigation Measure SODA 4.10-2a, SODA 4.10-4a)

**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 Berkeley General Plan Policy S-22.

**NEQSS Mitigation Measure SODA 4.10-4(b):** The proposed project would be fenced to prevent unauthorized access, which can result in injury. Construction practice would include posted notification of potential hazards, and would comply with applicable state regulations concerning safety practices for urban construction projects.

### **Transportation and Traffic**

**LRDP Mitigation Measure TRA-12:** The University shall prepare a strategic pedestrian improvement plan that outlines the expected locations and types of pedestrian improvements that may be desirable to accommodate 2020 LRDP growth. The plan shall be flexible to respond to changing conditions as the LRDP builds out, and shall contain optional strategies and improvements that can be applied to specific problems that arise as the LRDP builds out. The University shall develop the Plan in consultation with the City of Berkeley, and work with the City to implement plan elements as needed during the life of the 2020 LRDP on a fair share basis. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.5-8b)

**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. The scoping and budgeting of individual projects will include consideration of improvements to bicycle access. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.5-1f)

**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. (Supersedes NEQSS Mitigation Measure SODA 4.4-1a through 1c)

**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.

(Supersedes NEQSS Mitigation Measure TRAF-3; SODA 4.4-1a; 1990 LRDP 4.5-10)

**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. (Supersedes NEQSS Mitigation Measure TRAF-3)

**Continuing Best Practice TRA-3-d:** UC Berkeley will reimburse the City of Berkeley for its fair share of costs associated with damage to City streets from University construction activities, provided that the City adopts a policy for such reimbursements applicable to all development projects within Berkeley. ((Supersedes NEQSS Mitigation Measure SODA 4.4-1d)

**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. (Supersedes NEQSS Mitigation Measure TRAF-1)

**NEQSS Mitigation Measure TRAF-2:** Prior to build-out of the NEQSS Projects, the Campus shall install advanced pedestrian warning devices at the uncontrolled painted crosswalks on Hearst Avenue at Le Roy Avenue and on Gayley Road just east of the SHRB site. Appropriate devices may include in-pavement flashing lights, overhead flashing beacons, advanced electronic roadside warning signs, raised and/or textured crosswalks, or other devices to provide adequate warning to motorists regarding the presence of pedestrians intending to cross the street.

**NEQSS Mitigation Measure LRDP 4.5-1a through d:** See Continuing Best Practice AIR-1, AIR-5

### Utilities and Service Systems

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.13-2a and 2b; SODA 4.10-5b; SODA 4.10-6a; SODA 4.10-6b)

**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. (Supersedes NEQSS Mitigation Measure SODA 4.10-10)

**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 under the 2020 LRDP. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.13-5a and 5b; 1990 LRDP 4.13-9)



**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.

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.13-1; SODA 4.10-5a)

**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.

**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. (Supersedes NEQSS Mitigation Measure 1990 LRDP 4.13-12)

**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.

**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.

## VI. PROJECT GRAPHICS

Figure 1. Regional Location

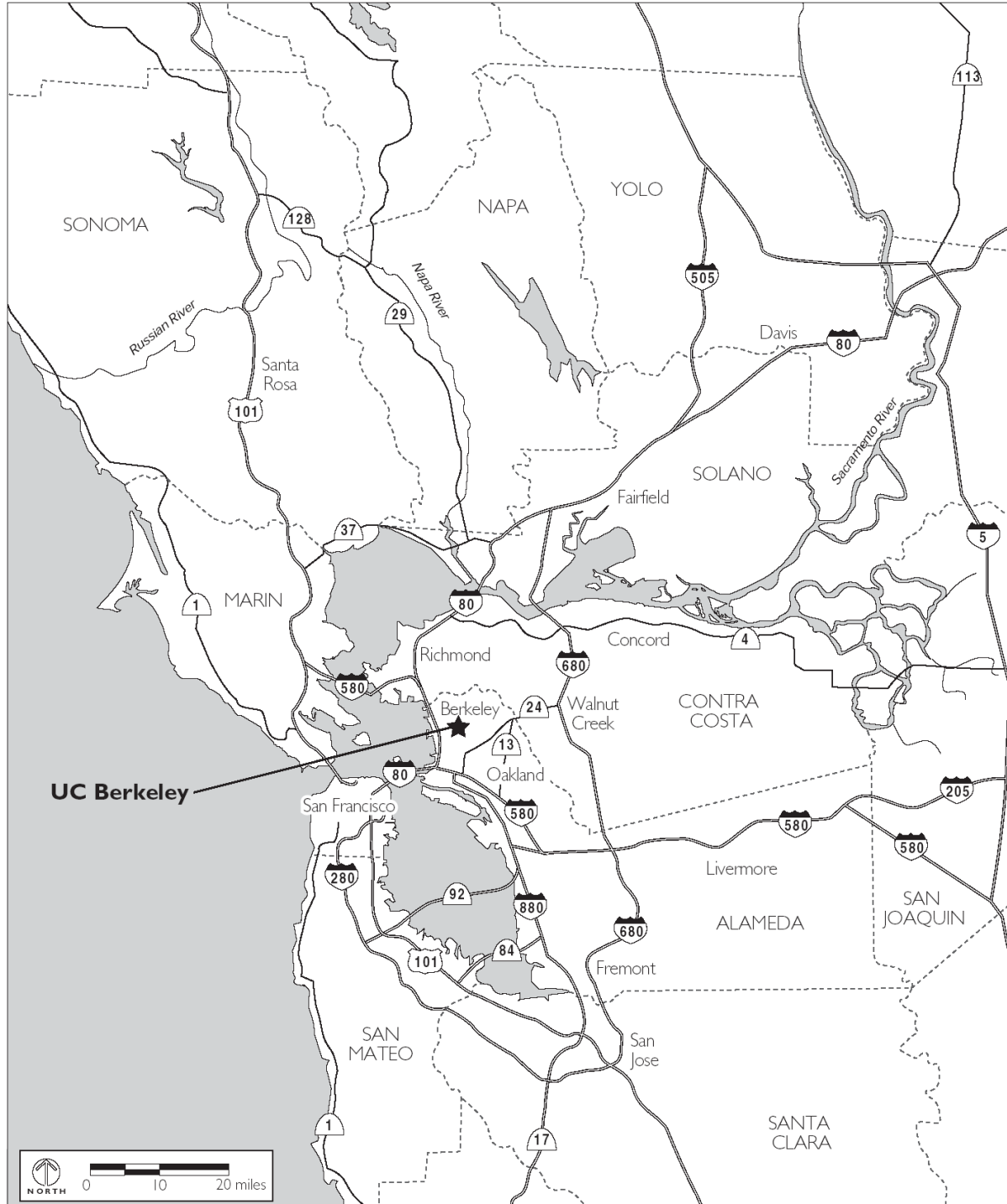


Figure 2. Project Location

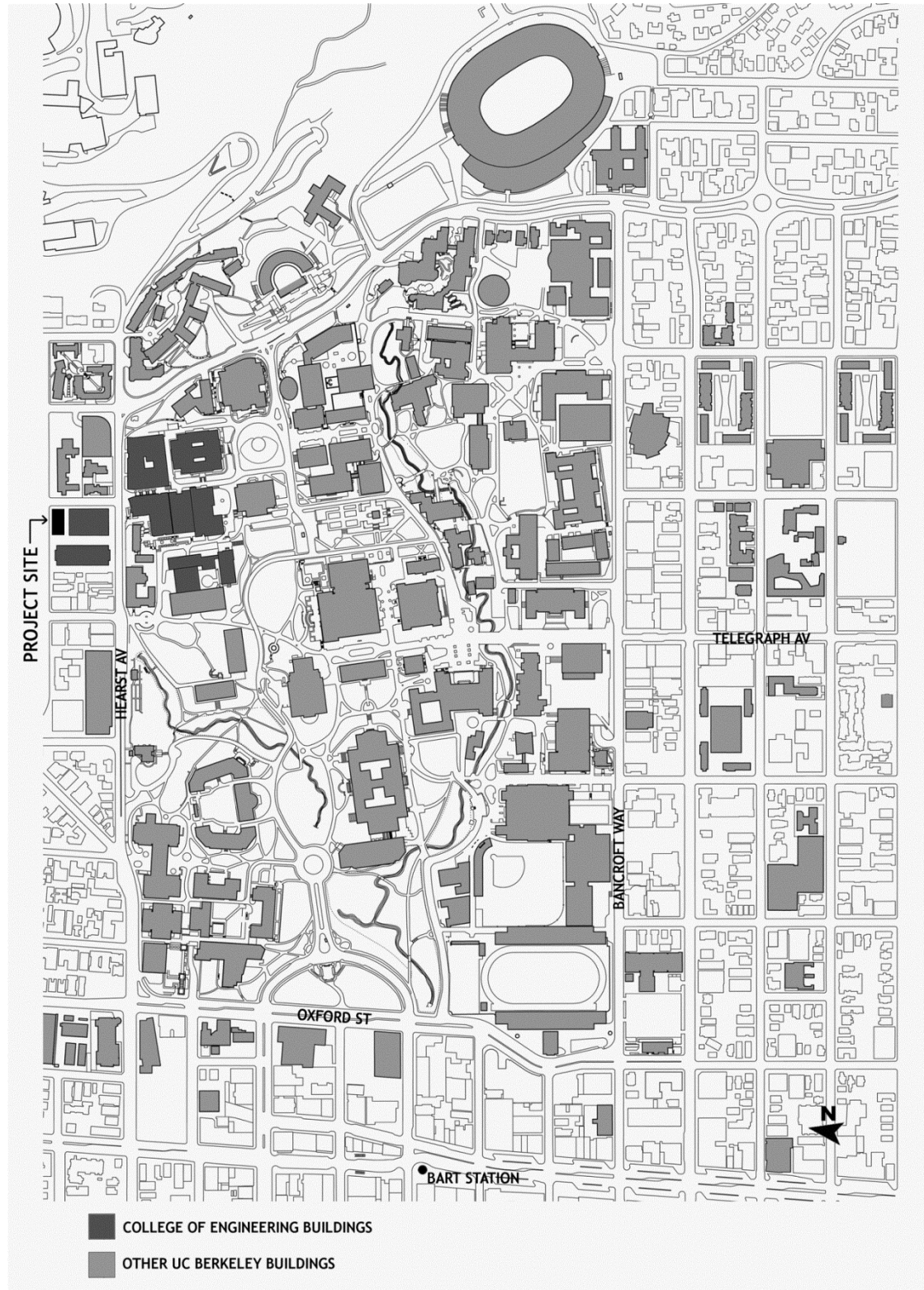




Figure 3a. Project site, from Le Roy and Ridge intersection





Figure 3b. Project site, from Etcheverry Trellis



FIGURE 4. Site Plan

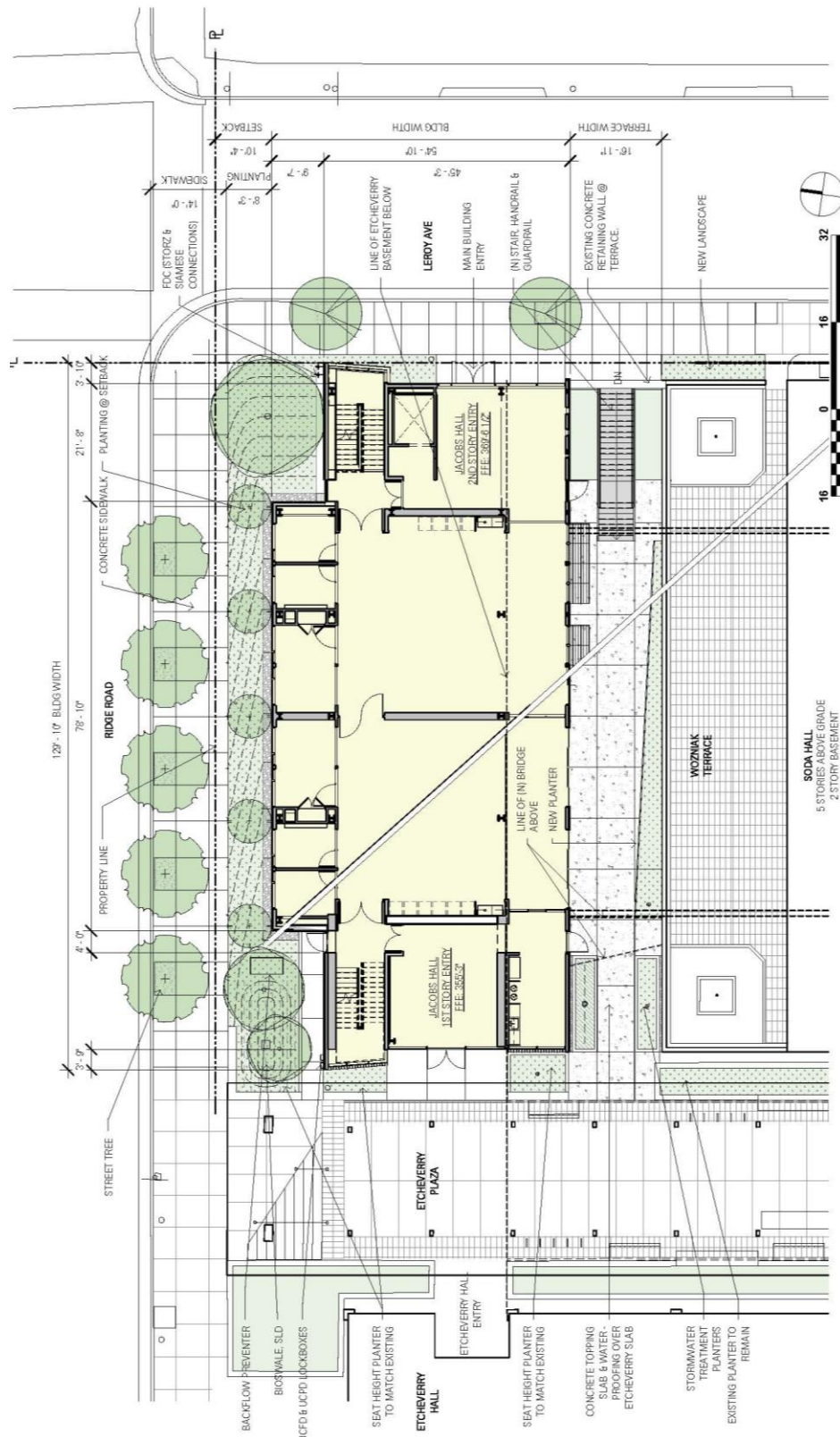




Figure 5a. Landscape Plan Overview



Figure 5a. Landscape Plan - Plantings



IN-STREET TREES - RED MAPLE  
 COLUMNAR TREES  
 IN-BEDWOOD TREES

FLOW THROUGH PLANTERS



PLANT OPTIONS - STEEL PLANTER



PLANT OPTIONS - FLOW THROUGH PLANTERS



CAREX DIWULSA



POLYPODIUM CALIFORNICUM



CORNUS STOLONIFERA



BETULA JACQUEMONTII



QUERCUS ROBUR 'CRIMSON SPIRE'



ULMUS FRONTIER



ACER RUBRUM

Figure 5a. Landscape Plan Elevations





Figure 6a. Elevation - East

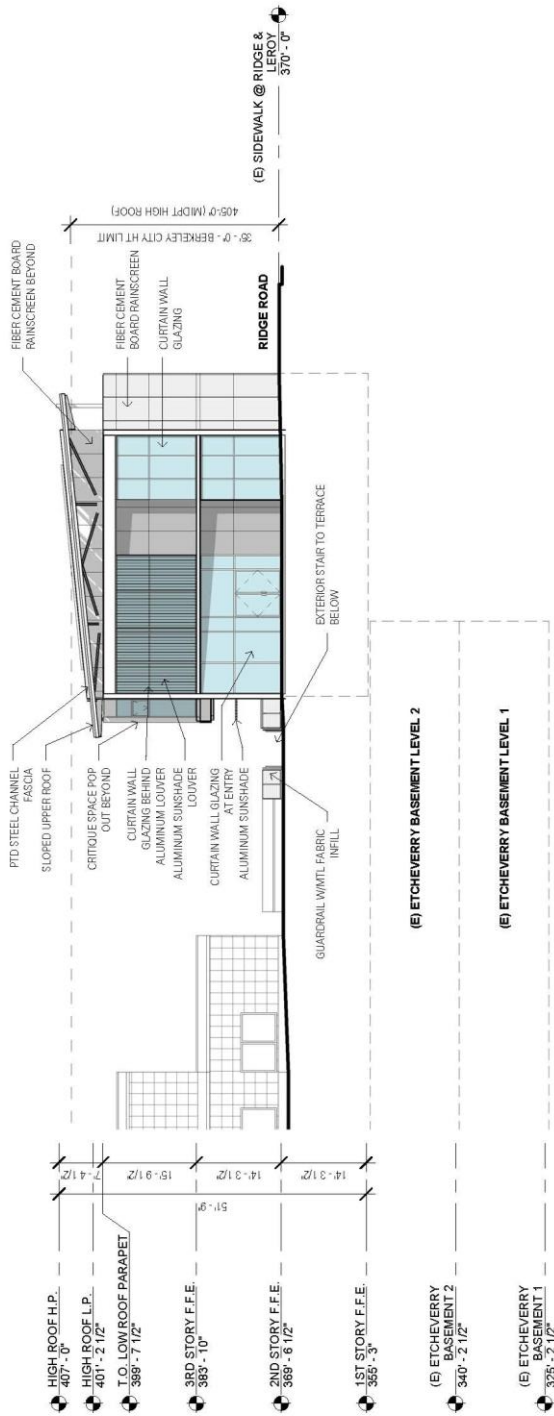


Figure 6b. Elevation - West

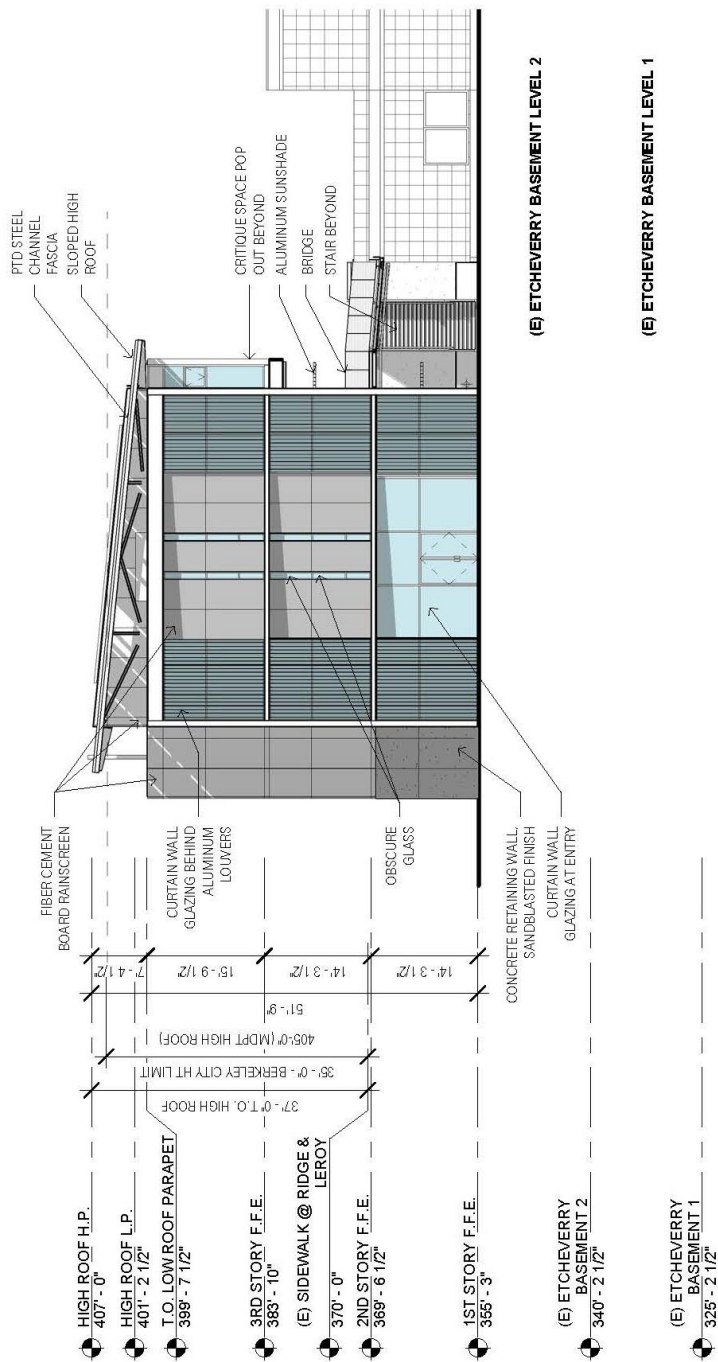


Figure 6a. Elevation - North

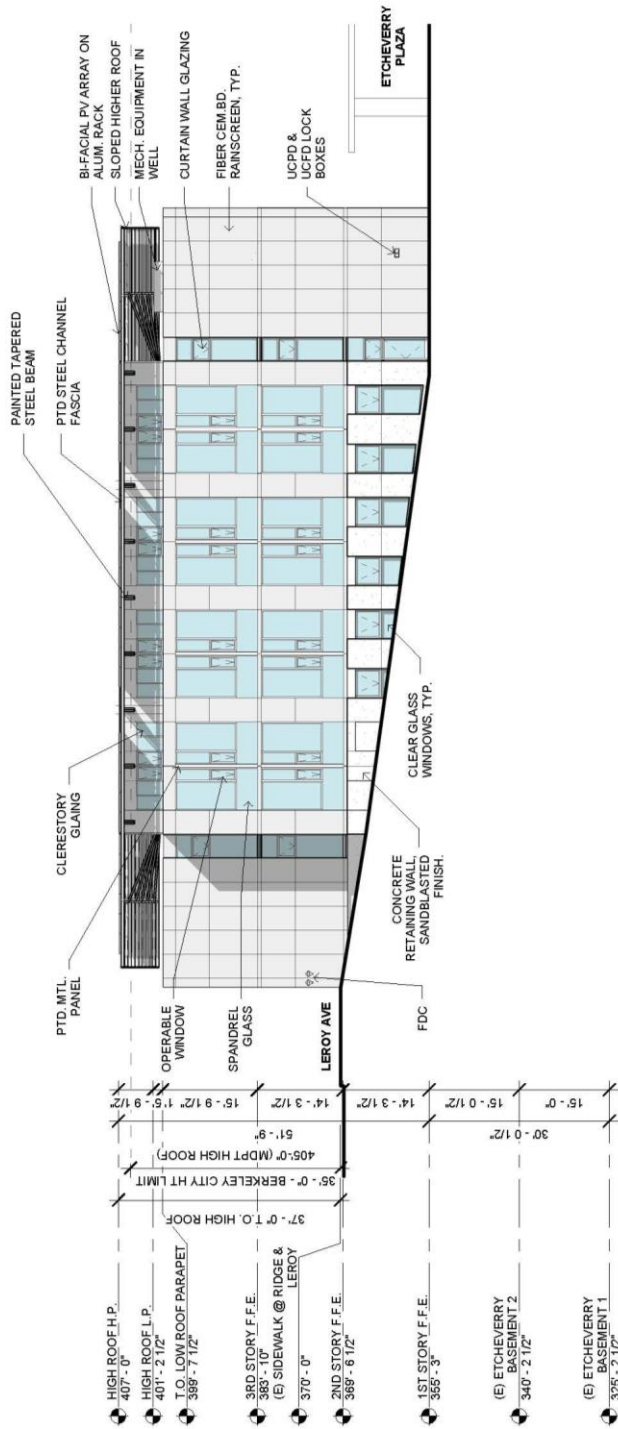




Figure 6a. Elevation - South

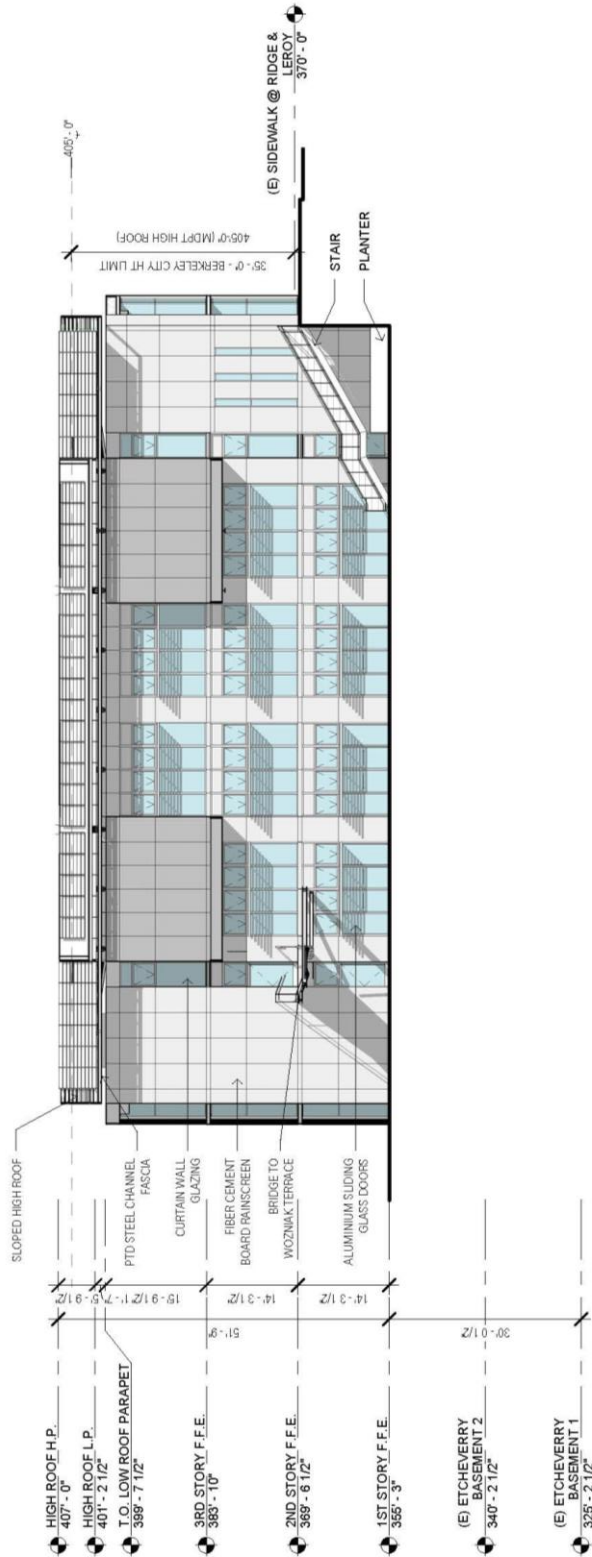


Figure 7. Revised Building Section

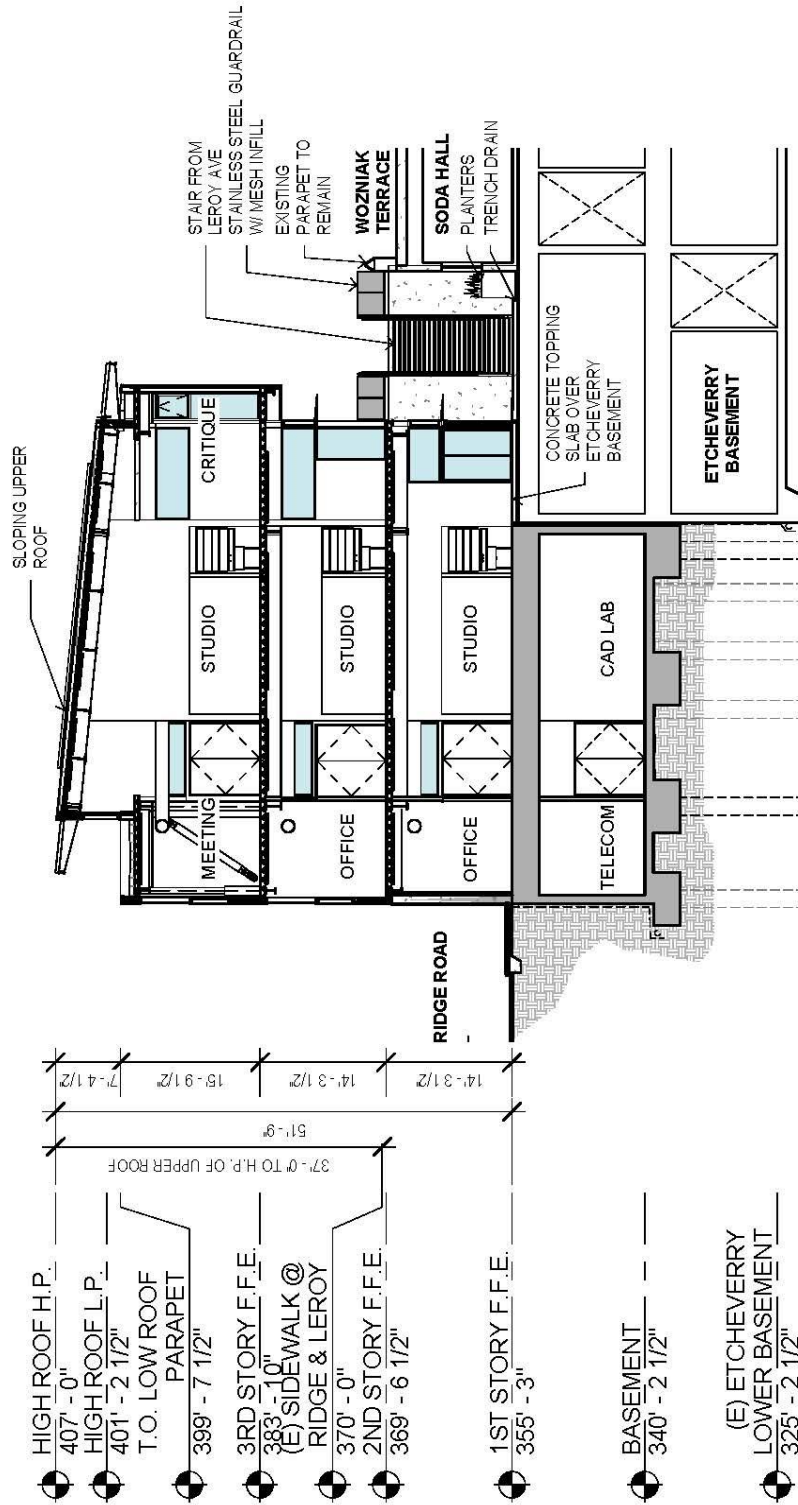


Figure 8a. Perspective – Aerial from Northeast





Figure 8b. Perspective – from east/Le Roy Avenue



Figure 8b. Perspective – from north/Ridge Road

