File No. 210017 **Committee Item No.** 2
Board Item No. ____________

COMMITTEE/BOARD OF SUPERVISORS

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Completed by: Erica Major **Date** January 7, 2021
Completed by: Erica Major **Date** ____________

FILE NO. 210017 RESOLUTION NO.

[Urging California Regents to Consider the Proposed UCSF Parnassus Expansion Plan EIR]

Resolution urging the California Regents to move consideration of the proposed University of California at San Francisco (UCSF) Parnassus Expansion Plan Environmental Impact Report (EIR) from their January 2021 meeting to their March 2021 meeting.

WHEREAS, The University of California, San Francisco (UCSF) is a public research university that operates four major campus sites within the City and County of San Francisco; and

WHEREAS, In June 1975, six neighborhood organizations abutting the UCSF Parnassus campus adopted the "Mt. Sutro Community Master Plan," which among other policies called upon campus planners to "limit the size" of the campus to "their present structural envelope" and to "decentralize functions" to other areas of the City; and

WHEREAS, In October 1975, in its Environmental Impact Report (EIR) on its Long Range Development Plan (LRDP), UCSF Parnassus campus planners accepted this notion stating "UCSF plans to limit its size at Parnassus Avenue campus to its present structural envelope" adding "UCSF will continue to decentralize its activities;" and

WHEREAS, On May 21, 1976, the Board of Regents of the University of California (The Regents) passed a resolution for its Parnassus campus, stating that "the total structures within the campus boundaries shall not exceed 3.55 million gross square feet and this limit shall be permanent;" and

WHEREAS, In each succeeding UCSF Parnassus LRDP, including the 2014 and 2019 amendments to the current LRDP, the commitment to the space cap has been maintained; and

WHEREAS, While state law exempts UCSF from local land use laws, on February 17, 1987, UCSF entered into a Memorandum of Understanding (MOU) with the City and County of San Francisco with the intent to create joint "oversight of University master planning, construction and real estate utilization;" and

WHEREAS, The aforesaid MOU stipulated that the UCSF LRDP would be considered as an "institutional master plan" required of all hospitals by the City's Planning Code and that "UCSF will advise the City in writing of all matters concerning master planning, construction and real property;" and

WHEREAS, On October 7, 2019, UCSF released the Comprehensive Parnassus Heights Plan (CPHP) which among other provisions declared the school's intent to bring its total footprint to approximately 5.9 million gross square feet, and which would require an increase in the space ceiling by 1.5 million gross square feet, from 3.55 million gross square feet to 5.05 million gross square feet; and

WHEREAS, The Draft Environmental Impact Report (DEIR) on the Plan, according to the Planning Department, "represents a substantial increase to the existing development at Parnassus Heights with a greater than 50% increase in the gross floor area" and raises concerns "about the plans impacts on MUNI" and "San Francisco's job-housing balance;" and

WHEREAS, In June 2020, as a means to ensure that the proposed expansion aligns with the City's priorities for housing, open space, and transportation and knits into the surrounding neighborhood, UCSF and the City of San Francisco began negotiating a Memorandum of Understanding (MOU); and

WHEREAS, To date, there have two public meetings regarding the proposed MOU, the first of which was held on September 29, 2020, in which members of the public were invited to "share your ideas about community investments and benefits;" and

WHEREAS, The second of two public meetings to date on the MOU was held on December 9, 2020, the purpose of which was to “review community feedback from the first community meeting, provide an overview of the proposed MOU terms, and discuss next steps;” and

WHEREAS, The proposed MOU, negotiated between the Planning Department, Mayor’s Office, and UCSF, was not made publicly available until January 1, 2021; and

WHEREAS, An Informational Hearing at the Planning Commission is scheduled for Thursday, January 7, 2021 for the public to consider the draft MOU; and

WHEREAS, Community outreach and engagement have been significantly more challenging, limited and time-consuming as a result of the COVID-19 pandemic, and in particular the surge in cases since November 2020; and

WHEREAS, As confirmed at the December 9, 2020, community meeting, UCSF officials, despite the limitations imposed on public input by the ongoing pandemic, and despite the delayed release of the proposed MOU, remain committed to seeking approval from The Regents on their EIR plan at the UC Regents meeting of January 19-21, 2021; and

WHEREAS, The proposed MOU has not been presented for approval, or approved, by the San Francisco Board of Supervisors; and

WHEREAS, UCSF has rejected requests that the Regents consideration of the EIR be delayed until the next meeting of the Regents in March; now, therefore, be it

RESOLVED, That the Board of Supervisors urges The Regents to consider the proposed CPHP EIR at their March 2021 meeting in order to allow the residents of the City and County of San Francisco to better understand, consider, and comment upon the project including the draft MOU between their local representatives and UCSF; and, be it

FURTHER RESOLVED, That the Clerk of the Board of Supervisors transmit copies of this Resolution to The Regents.

University of California San Francisco

COMPREHENSIVE PARNASSUS HEIGHTS PLAN

FINAL REPORT

OCTOBER 2019, AS UPDATED IN JUNE 2020

UCSF PERKINS EASTMAN

Property of UCSF

Prepared by Perkins Eastman

Issued: October, 2019

We are very pleased to present the Comprehensive Parnassus Heights Plan (CPHP), a bold and transformative vision for the long-term revitalization of a campus that has served San Francisco for more than a century. The release of this plan marks a milestone for UCSF's birthplace—the site where colleges united to form a health sciences university bound by a culture of collaboration across research, education, and patient care. This plan envisions a reinvigorated Parnassus Heights campus that both strengthens the neighborhood's economic and cultural vitality and allows us to deliver world-class health care and research to San Francisco, the Bay Area, and the global community for decades to come.

The CPHP will bolster UCSF's ability to provide high-quality, cost-effective health care through a cohesive, integrated campus that embraces smart urban planning. The plan includes a new patient-centered hospital and modern outpatient space, research, and teaching spaces. Importantly, it also incorporates planning elements that seek to improve mobility, increase campus housing, and create significantly more open spaces and greater community access. The Parnassus Heights campus of the future will reflect San Francisco's innovative spirit, expanding on the university's history of setting the standard for care delivery, education, and research, while allowing UCSF to invest in a shared future that also serves our neighbors and the city.

We are grateful for the collaboration and input of so many engaged stakeholders, including representatives from adjacent neighborhoods, the broader San Francisco community, and the UCSF community. The CPHP benefitted from an inclusive process that sought perspectives and expertise through the Parnassus Heights Master Plan Steering Committee, four faculty/staff working groups, many campus meetings, and four large-scale surveys, in addition to the Community Working Group, a neighborhood survey and several community open houses. The input from the community was captured in the Community Ideas report, which is part of the CPHP. We appreciate all who contributed to re-envisioning the campus, a process that has been shepherded and summarized in this plan by the Perkins Eastman planning and design firm.

We are excited to begin the transformation of Parnassus Heights, a process that will be guided by the continued collaboration and guidance of our stakeholders over many decades. What the CPHP offers is a once-in-a-lifetime opportunity to create a destination campus that supports an innovative ecosystem of human-centric science, where our scientists, clinicians, learners and staff can do their best work and where patients, and visitors and neighbors can experience the best that UCSF has to offer. The CPHP will guide our future decisions regarding new construction, demolition, and renovation, beginning with our near-term priorities described on page 113. As we begin this work, we will continue engaging our stakeholders to develop a campus with new benefits and features, as described in Section 2, that serve the changing needs of our neighbors, UCSF, and the community we share.

On behalf of Chancellor Sam Hawgood and the entire leadership team, we invite you to learn more about our vision for Parnassus Heights. Together we will enter a new era, capitalizing on our collective vision and expertise to the benefit of our UCSF community, our neighbors and our city, and everyone we are privileged to serve.

Daniel H. Lowenstein, MD
Executive Vice Chancellor and Provost
Dr. Robert B. and Mrs. Ellinor Aird Professor of Neurology

Paul Jenny
Senior Vice Chancellor
Finance and Administration
October, 2019

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EXECUTIVE SUMMARY

The campus vision encourages the consolidation of campus functions and clarifies uses while addressing space needs, creating opportunities for growth and convergence.

For illustrative purposes only: image does not represent architectural design.

EXECUTIVE SUMMARY

1. Service Corridor
Develop back-of-house utility and material distribution systems for efficient campus operations (alignment to be determined).

2. Renovations
Support sustainable growth.

3. "Campus Heart"
Create the campus heart at Saunders Court and connect to the West Side of campus.

4. New opportunities
Support convergence between missions with new buildings and linkages.

5. New public spaces

6. Restored 4th Avenue

7. Housing
Explore long-term housing opportunities on the West Side.

8. Streetscape
Improve Parnassus Avenue.

9. Community
Integrate programs with the surrounding neighborhood.

10. Gateway
Locate programs that activate Irving Street.

11. Clinical East End
Consolidate clinical services in the East End and support a holistic patient/visitor arrival experience.

12. New hospital
Future location for the new hospital building at the Helen Diller Medical Center.

Legend

● Existing buildings

○ Opportunity sites
(Not representative of design)

EXECUTIVE SUMMARY

The vision provides the opportunity for new amenities and "Park to Peak" connections via an activated, public ground plane. The expansion of public spaces shown below is estimated to be a three-fold increase over today's condition.

For illustrative purposes only: image does not represent architectural design.

1. Service Corridor

2. Pedestrian connections
Connect the campus to Mount Sutro via a pedestrian connection at the service corridor.

3. "Campus Heart"
Create the campus heart at Saunders Court and connect to the West Side of campus.

4. Promenade
Enhance campus public space with a large central promenade bridging the Campus Heart to the West Side.

5. Trail
Coordinate with planned trailheads to Mount Sutro.

6. Forest views
Maintain visual connection to Mount Sutro.

7. Forest
Continue stewardship of the Mount Sutro Open Space Reserve.

8. Open space visual connection

9. Community
Provide a home for community amenities.

10. Neighborhood
Keep Avenue houses in place to serve as a buffer between the campus and adjacent neighborhood.

11. Lodging
Explore lodging for patient families.

12. Millberry Terrace

13. Park-to-Peak
Enhance connections to Golden Gate Park.

14. Across Parnassus Avenue
Explore a bridge and a tunnel.

Legend

● Existing buildings

○ Opportunity sites (Not representative of design)

● Public spaces

1 CAMPUS CONTEXT

CAMPUS CONTEXT

1.1 A CHANGING SAN FRANCISCO

As a global center of biotech and digital innovation and financial capital of the West Coast, San Francisco is a destination city known for its beauty, cultural diversity, and economic opportunity. UCSF is a powerful contributor within the City's economic and social landscape. As a top job creator and the second largest employer in the City and County, UCSF contributes to San Francisco's energy and "innovation ecosystem," attracting world-class talent to live, work, and study.

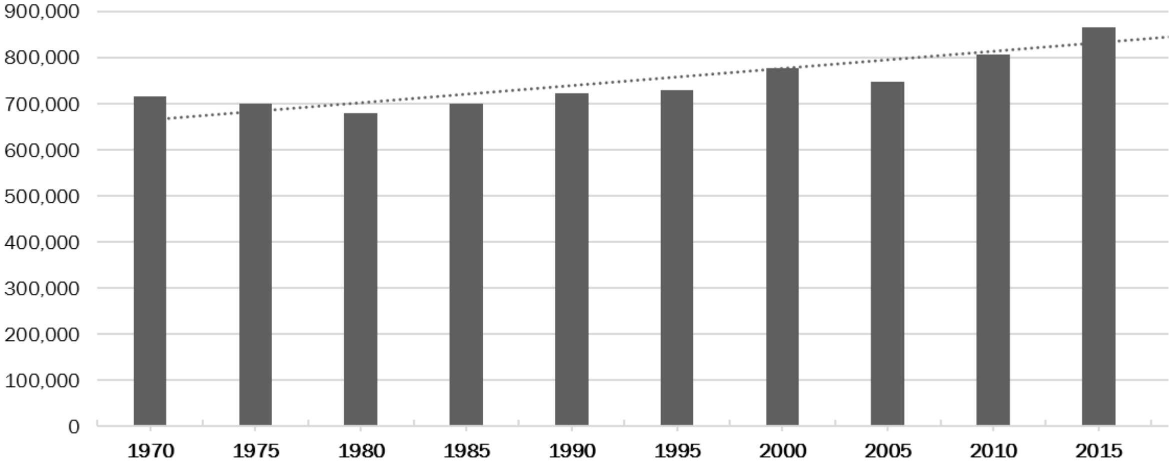
Due in part to surging economic growth, San Francisco is undergoing a transformation, including growing socioeconomic and health disparities, increasing cost of living and reduced housing affordability, and a public transportation infrastructure at capacity. The demands of a growing population have placed intense strain on many of the region's existing systems forcing the City to rethink its approaches to housing, transportation, and neighborhood growth.

42,700 Bay Area jobs created by UCSF

$8.9 BILLION estimated economic output by UCSF in the Bay Area

$273.5 MILLION in charity and uncompensated care provided by UCSF Health

UCSF stakeholders and members of the community have expressed a strong interest in responding to these evolving challenges. Robust new approaches and solutions will be crucial to continue to thrive in the social, economic, health care, and academic sectors of the Bay Area.



1.1. San Francisco's population has grown by 23.5% since the 1970's.

1.2 PARNASSUS HEIGHTS TODAY

The Parnassus Heights campus site is located near the geographic center of San Francisco and was one of the first major building sites in the western portion of the City. Golden Gate Park is located to the north, with the Mount Sutro Open Space Reserve comprising the southern portion of the campus. Adjacent to the Parnassus Heights campus site are mixed residential neighborhoods. Irving Street, marking the northern campus boundary, includes the N-Judah Muni line from downtown to Ocean Beach. Parnassus Avenue runs through the center of the campus, dividing it across a bustling street, where Muni runs several bus routes and UCSF operates its campus shuttles.

Medical Center Way leads from Parnassus Avenue through the Mount Sutro Open Space Reserve to the Aldea housing community. Clarendon Avenue marks the southern edge of the Parnassus Heights campus site.

The Parnassus Heights campus has breathtaking views and is itself visible on the foot of Mount Sutro from many areas of the City. The 107-acre campus is located in a microclimate that has frequent marine fog and wind.

1.2. UCSF Parnassus Heights campus site context.

1.2 PARNASSUS HEIGHTS TODAY

Campus Conditions and Challenges

Since the 1990s, UCSF's physical expansion and investment have focused on the 60-acre Mission Bay campus site. As a result, the advancement of the clinical, educational, and research enterprise at the Parnassus Heights campus site has occurred without corollary investment in its physical environment. As shown in Figures 1.5 and 1.6, buildings on the site have an average age of more than 50 years, and many have limited long-term viability.

The discrepancy between the practice of cutting-edge health sciences and the physical condition of the campus is clear.

Today, the Parnassus Heights campus site must confront the following challenges:

- Future advances in learning, discovery, and healing are dependent on close collaboration and creative partnerships that the current campus design does not facilitate;
- The current physical state of the campus and limited infrastructure supporting research, educational, and clinical activities are compromising the ability to recruit and retain faculty, clinicians, learners, and staff;
- There are insufficient comfortable, landscaped areas and public spaces that could provide quality of life improvements, workplace satisfaction, or therapeutic benefits to all user groups;
- The current campus design contributes to a sense of isolation from the neighborhood and

1.3. Parnassus Heights campus site in context.

lacks an iconic "front door" experience and a sense of welcome;

- Older buildings have low floor-to-floor heights and do not meet the current standards for contemporary specialized research and clinical care;
- Support infrastructure is at risk of failure, vulnerable to increased environmental stressors, and very costly to maintain;
- The Parnassus Heights campus is subject to a "space ceiling" adopted by the Board of Regents of the University of California, as part of the 1976 Long Range Development Plan (LRDP) in response to neighborhood concerns around campus growth. The space ceiling controls expansion with a 3.55 million gsf limit that includes all non-residential buildings within campus boundaries.

1.4. Overcrowded lab spaces in the Health Sciences West tower.

Existing Building Challenges

Building codes for accessibility, fire and life safety, seismic performance, and other requirements have become more stringent over the past 50 years. Some older buildings on the Parnassus Heights campus have not kept up with these advances and are currently being evaluated to assess the dependencies in bringing them up to these standards.

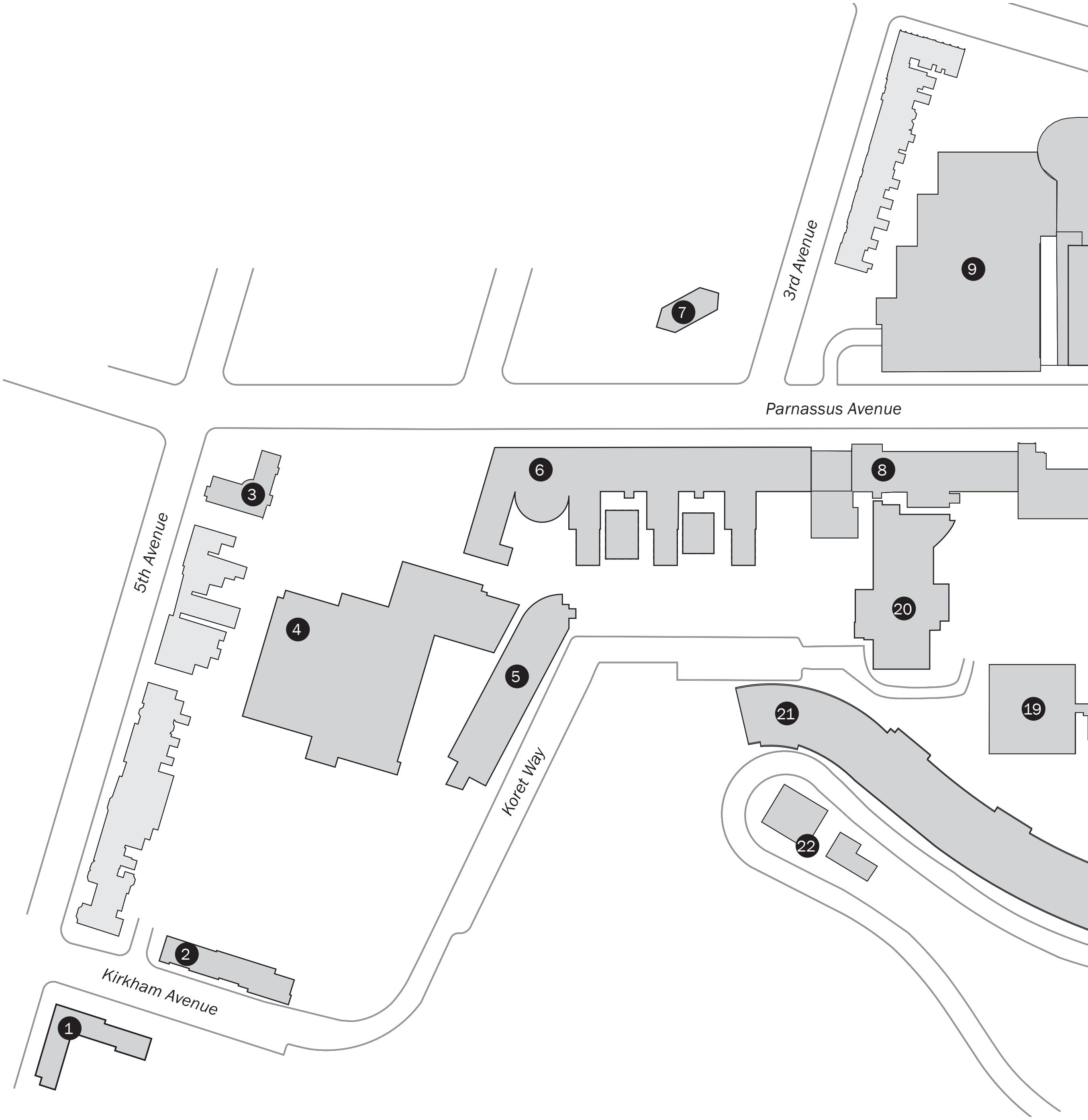
Similarly, in response to advancing technology, spatial requirements for research and clinical spaces have also grown and shifted. The increase in equipment sizes, associated code requirements, and new trends for improved work environments put pressure on existing spaces.

Planning for the future requires UCSF to strategically rethink its existing space portfolio. Low floor-to-floor heights, small floor plates, and older infrastructure constrain existing buildings' potential. In addition to technical feasibility, comprehensive decision making must be conducted to assess the trade-offs between intensive renovations and new building projects on a site-by-site basis. The ability to conduct building modifications without risk to power or other service interruption is a prerequisite and has been found to add significantly to cost and complexity.

Some buildings are considered candidates for "wholesale" (entire building) renovation (see Figure 1.6). This is based on technical review and discussion with UCSF stakeholders and is subject to further assessment. Other buildings may better support the campus vision as opportunity sites for new structures, helping to create new locations for growth and to decant and relocate existing campus programs within the campus footprint.

1.2 PARNASSUS HEIGHTS TODAY

The average age of buildings on campus is 50+ years old. The Parnassus Heights campus comprises 71 buildings over a total area of 107 acres and accommodates a daily population of approximately 17,400 people.



1.5. Existing buildings at Parnassus Heights.

1. Proctor, 1956
9,900 gsf

2. Kirkham Child Care, 2009
7,200 gsf

3. Faculty Alumni House, 1915
7,200 gsf

4. Dental Clinics, 1979
135,000 gsf

5. Koret Vision Research, 1986
43,100 gsf

6. UC Hall, 1917
148,200 gsf

7. Lucia Child Care Center, 1978
7,200 gsf

8. Clinical Sciences, 1933
108,000 gsf

9. Kalmanovitz Library, 1991
148,800 gsf

10. Millberry Union, 1955
415,400 gsf

11. Medical Building 1 (ACC), 1972
602,000 gsf

12. LPPI, 1941
104,800 gsf

13. Moffitt Hospital, 1955
397,100 gsf

14. Medical Sciences, 1954
392,400 gsf

15. Long Hospital, 1982
365,800 gsf

16. Central Utility Plant, 1998
39,300 gsf

17. Parnassus Services, 2005
88,800 gsf

18. Health Sciences East, 1964
204,700 gsf

19. Health Sciences West, 1964
237,400 gsf

20. School of Nursing, 1972
88,100 gsf

21. Dolby Regeneration Medicine, 2010
69,100 gsf

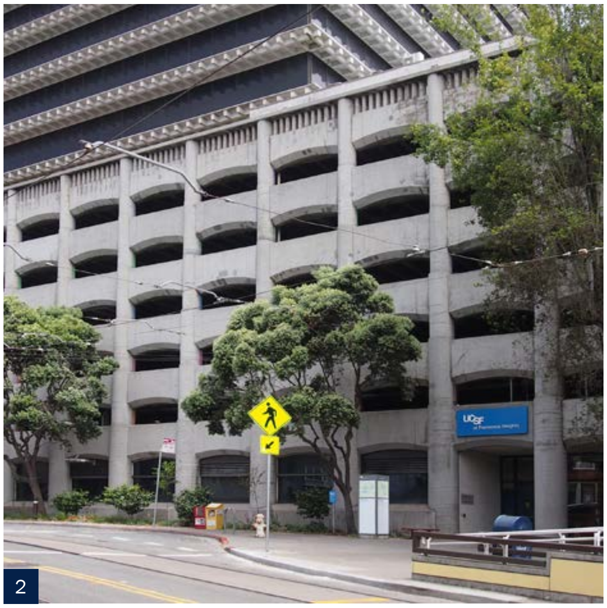
22. Environmental Health & Safety and Annex, 1971 and 1953
8,700 gsf

Areas rounded to the nearest 100 gsf and exclude accessory structures, Avenue houses, and Aldea housing.

1.2 PARNASSUS HEIGHTS TODAY

The arrival experience at the Parnassus Heights campus site is not optimized. Entries are confusing and unattractive.


1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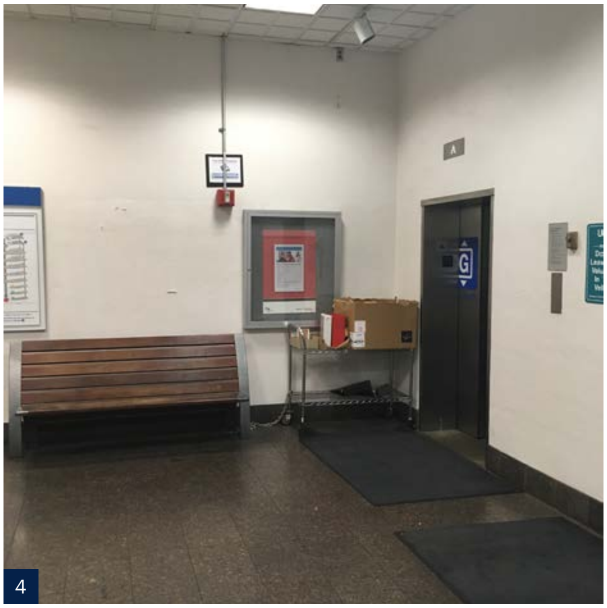
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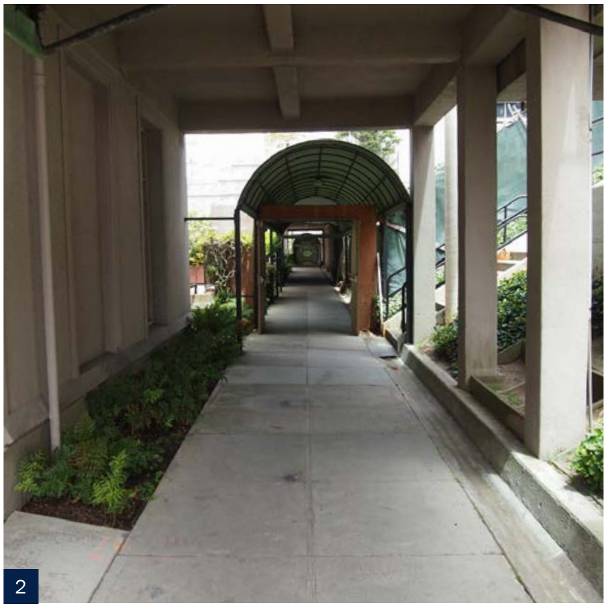
1. A wall to the neighborhood
2. Poor wayfinding
3. Existing “front door” at MSB is hard to see
4. Uninspiring entry sequence at Irving Street

Most buildings are aging and difficult to navigate. They fall short of world-class, contemporary space standards.


1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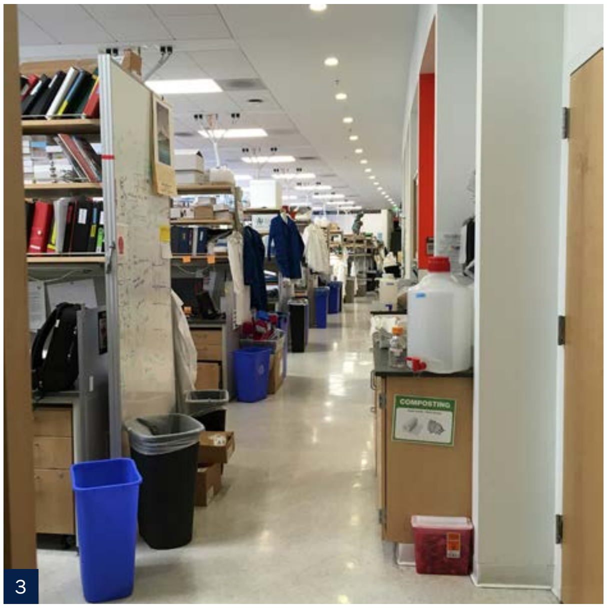
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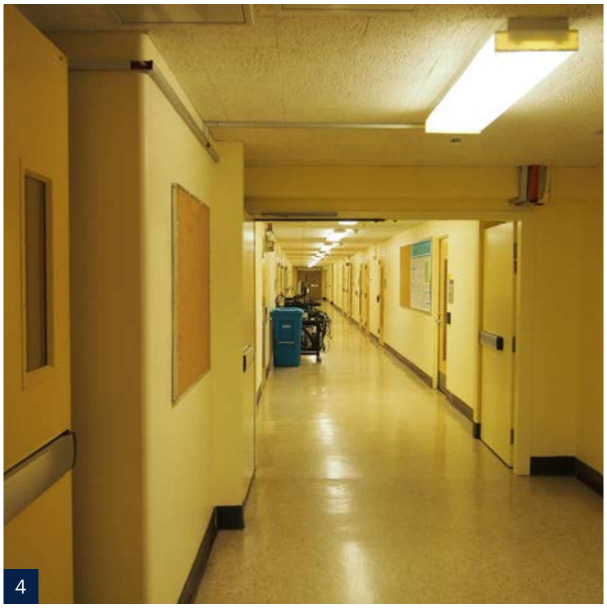
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1. Aging buildings and infrastructure
2. Lack of connection with nature, even outside
3. Need for contemporary space
4. Uninspiring interiors, lack of views

1.2 PARNASSUS HEIGHTS TODAY

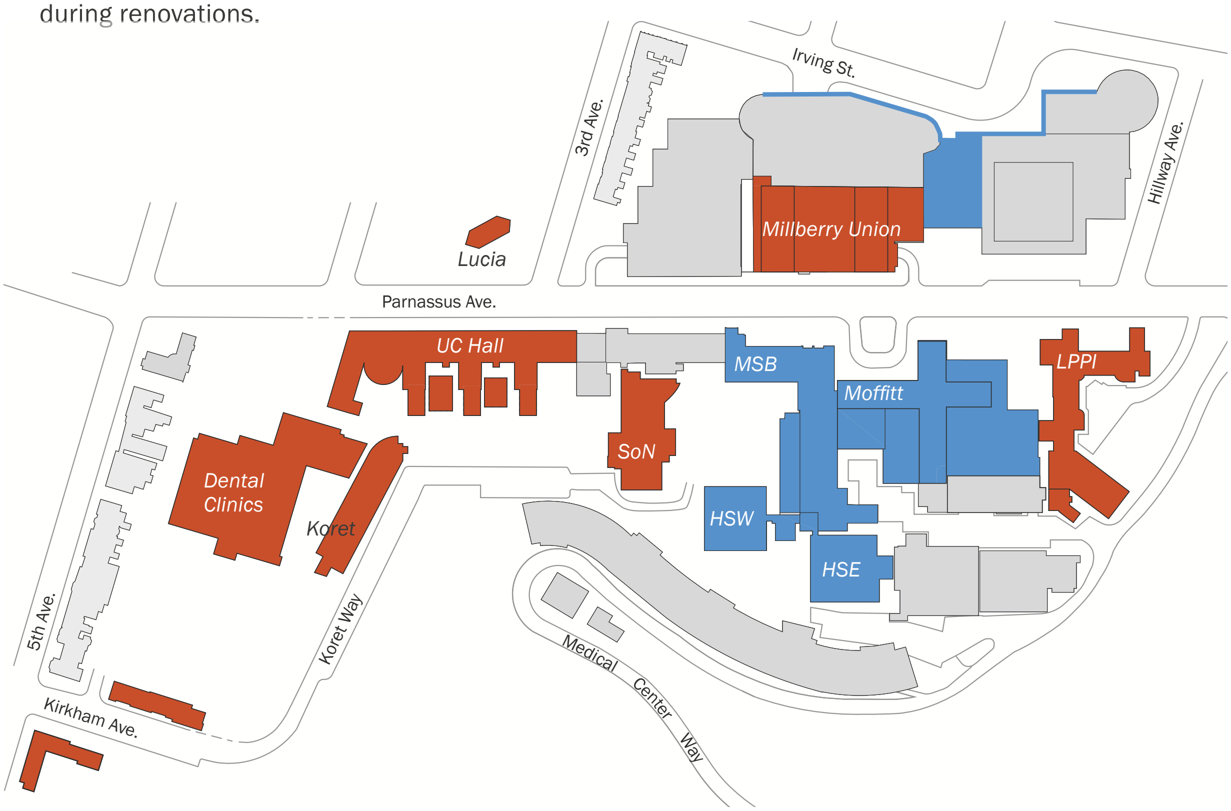
Considerations for Potential Renovations

Building renovation scenarios should account for:

- Cost impact of seismic upgrades, deferred maintenance, and infrastructure, and feasibility of compliance with life safety and performance codes;
- Program use, activities requirements, and floor plate efficiency;
- Ability to upgrade mechanical and electrical systems for contemporary uses;
- Aesthetics and historical value; and
- Availability of 'swing' space to accommodate temporary relocations on or off campus during renovations.

Buildings are deemed to have limited usable life when:

- Renovations required to comply with seismic and life safety standards are beyond replacement cost;
- The site can better accommodate other uses that strategically respond to campus long-term needs; or
- Building physical characteristics (e.g., floor-to-floor heights or floor plate sizes) make them less viable for specialized activities.



Legend

● Potential major renovation

● Assumed limited usable life

1.6. Existing campus buildings with potential for major renovation or possible demolition.

1.3 CHANGING MOBILITY

The way we choose to travel and how we best access goods and services is quickly evolving. Today, this includes ridehail services such as Uber and Lyft and micromobility services such as shared bikes and scooters. In the future, this may include autonomous vehicles. As a major destination, Parnassus Heights is facing pressure to adapt to new technologies.

In 2018, UCSF prepared a *Future of Mobility* study, beginning a long-term exploration of ways the campus can manage risks and take advantage of opportunities associated with new technologies and trends:

- UCSF is affected by increasing use of ridehail services by patients, visitors, and employees traveling to and from work, class, or non-emergency health care.
- Robots are currently being used within building for deliveries at the UCSF Medical Center at Mission Bay. These and other emerging alternatives for delivery such as small sidewalk robots and autonomous trucks may eventually come to Parnassus Heights.

Parnassus Heights Circulation Challenges

The campus circulation strategy goals include directing the high volume of patients and visitors from the Millberry Union garage and transit stops on both Parnassus Avenue and Irving Street to their clinical destinations and providing safe and convenient access across Parnassus Avenue for all users.

One challenge is managing the balance of transportation uses on Parnassus Avenue, including Muni buses, UCSF shuttles, passenger drop-off, commercial loading, and pedestrian crossings. Additional parking and circulation challenges include:

Garages

- At more than 50 years old, both garages will require seismic upgrades to remain viable during the Plan duration. Low floor-to-floor heights make re-purposing the garages to other uses difficult. Both need upgrades to lighting, improved wayfinding, and re-striping to enhance customer experience.
- The entrance and exit for the Ambulatory Care Center (ACC) garage at the intersection of Carl and Arguello streets creates visibility challenges.
- The ACC garage helix ramp requires internal intersections and complex turning movements. It would benefit from safety improvements.

Passenger Pick-up/Drop-off

- There is insufficient drop-off area for patients and their families to access clinical services.
- On-street loading areas on Parnassus Avenue are congested.

Transit and Pedestrian Experience

- Pedestrian crosswalk and connections across Parnassus Avenue should be improved, especially mid-block.
- The vehicular entrances to the Millberry Union garage and unattractive facades detract from the pedestrian experience on Irving Street.
- Waiting for Muni on Irving Street is an unpleasant experience.

Commercial Loading

- Most of the existing campus loading docks are operating at or over capacity, resulting in congestion.

1.4 PLANNING PROCESS

1.4 PLANNING PROCESS

The CPHP is the result of a highly participatory and inclusive engagement effort embracing a wide variety of stakeholders' viewpoints on the future vision for the Parnassus Heights campus site.

UCSF Internal Process

The CPHP process was led by the Parnassus Master Plan Steering Committee (PMP), which comprised faculty and senior administrators across the campus and UCSF Health. PMP members helped define the programmatic strategy and vision for the Parnassus Heights campus and oversaw the preparation of the Plan. They guided:

- **4 Faculty Working Groups** (Research Space, Education Space, CoLabs, Digital Hub) to develop the vision, concepts, and specific space needs for the various programmatic areas. Summaries of their recommendations can be found in Chapter 4, with the full reports in Appendix B.
- **3 Visioning Workshops**: Blue Sky Ideas (July 2018), Design Alternatives (November 2018), Preferred Alternative (January 2019). These workshops were attended by a broad array of Campus and UCSF Health stakeholders.
- **1 Town Hall Meeting** attended by more than 300 participants in person and watched by more than 200 livestream viewers online, showcasing the vision for the proposed plan.
- **3 Surveys** with broad internal participation to gather further input. A Research Faculty survey received 1,200 responses, the Employee and Student Survey received 1,800 responses, and the UCSF Health "Hospital of the Future" Survey received 940 responses.
- **1 Community Relations Subcommittee** that oversaw the external community engagement process.
- **1 Resilience Scan Workshop** in partnership with 100 Resilient Cities and Perkins+Will, assessing the CPHP's resilience to potential shocks and stresses.

Public Process

UCSF engaged its external community to provide input into the Parnassus Heights campus re-envisioning effort to identify potential improvements that would further neighborhood goals for the physical environment in the areas surrounding the campus. The re-envisioning comprehensively evaluated improvements to building design and functionality, public spaces and pedestrian connectivity, as well as vehicular traffic flow. Hundreds of community members were engaged through a public survey, community working group meetings, and three open houses.

The Community Working Group, comprising 24 members included community leaders, neighbors, merchants, city representatives, and UCSF staff. The external engagement process was organized in three phases:

1. **"Discovery" Phase (May - September 2018)** This phase focused on introducing the community to the CPHP concept and educating them on the process, as well as soliciting initial feedback from neighbors on potential campus improvements.

   Activities included a neighborhood survey (1,100 responses), an informational postcard and a presentation at UCSF's quarterly Community Advisory Group meeting in September.
2. **"Alternatives" Phase (October 2018 - February 2019)** During this phase, neighbors were presented with three plan options and gave feedback on the alternatives.


1


2


3

1. Community Open House, October 2018 Executive Vice Chancellor and Provost Dan Lowenstein presents.

2. Community Working Group walking tour, December 2018

3. Town Hall, April 2019

1.4 PLANNING PROCESS

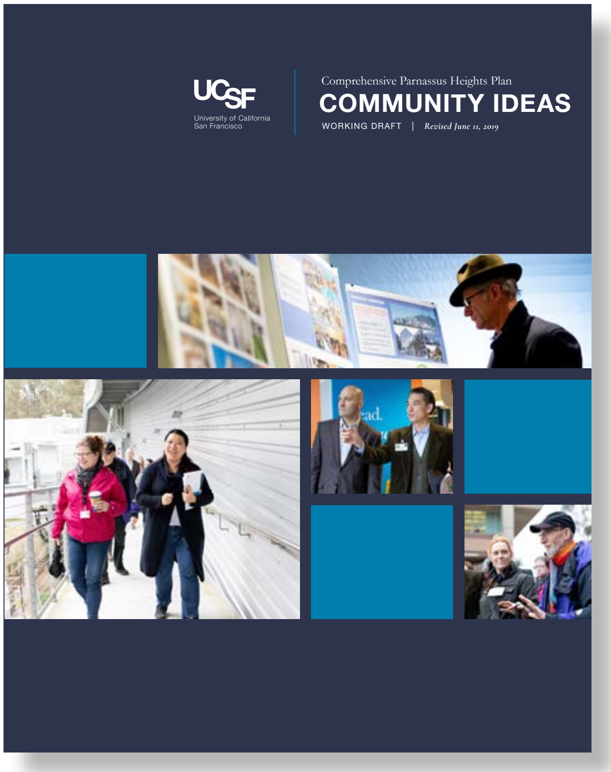
The Community Working Group was launched with five meetings through this period, a community open house event was held in November, and there was a presentation at UCSF's quarterly Community Advisory Group meeting in December. Community Working Group members also participated in a campus tour.

3. **"Future Direction" Phase (March - June 2019)** This phase focused on refining the plan and finalizing the Community Ideas Report, a document memorializing the community feedback received on the plan and included as Appendix B.

   The Community Working Group met two more times, there were two community open house events, and there were two more presentations to UCSF's Community Advisory Group in March and June.

Community Working Group members identified potential improvements that would further the community's goals for the physical environment surrounding the Parnassus Heights campus.

The Community Ideas report offers information, ideas and strategies on the topics of transportation/mobility, housing, open space, and the public realm. It also highlights design elements, programs, and amenities that could benefit the neighborhood. Key ideas are summarized in the call-out box on the next page and the full report is avilable as Appendix C.



UCSF
University of California
San Francisco

Comprehensive Parnassus Heights Plan
COMMUNITY IDEAS
WORKING DRAFT | *Revised June 11, 2019*

1.7. Community Ideas report.

COMMUNITY IDEAS SUMMARY

Ideas from the community include:

- **Housing**
  A range of on-campus housing options provided to students, staff, and faculty. There is an interest in reducing transportation demand by offering more units.
- **Campus Design**
  A campus that is more clearly articulated and better organized functionally. There is an opportunity to take greater advantage of the topography and views to, through, and from the site.
- **Connectivity with Nature**
  A greener campus with more landscaping, trails, and open spaces throughout. There is strong support for the "Park-to-Peak" connection from Golden Gate Park to Mount Sutro.
- **Multi-Modal Mobility**
  A "pedestrian-first" campus, with vehicular traffic balanced between Parnassus Avenue and Irving Street.
- **Public Realm**
  A network of public spaces on campus with improved streetscapes and neighborhood connections.
- **Programs & Amenities that Benefit the Neighborhood**
  Activities and facilities at UCSF that support increased integration with the neighborhood and with the city at large.


SERVICE ROAD
TOWN HOMES
APTS
APTS

2 COMMUNITY BENEFITS

COMMUNITY BENEFITS

As a public university, UCSF seeks to improve people's lives through its worldwide mission of delivering the best patient care, research and teaching—beginning in the city it proudly calls home. From free children's health screenings to care for the low-income, unhoused and under-insured to biotechnology breakthroughs that are curing some of the most pernicious diseases, we serve an ambitious public mission that spans more than 150 years of San Francisco history.

To meet the evolving needs of the city, community and the University, UCSF is following an inclusive planning process to create a Parnassus Heights campus that contributes to the vibrancy and livability of the neighborhood and the broader community. The vision outlined in this multi-year plan reflects input from neighbors, community thought leaders, city agency partners, patients and families, and members of our faculty and staff. Importantly, the Community Working Group played a key role in identifying the mutual benefits and shared opportunities that a revitalized Parnassus Heights campus could deliver to our neighbors and the city. These benefits are summarized in the Community Ideas report available in Appendix C.

The Parnassus Heights plan's forward-thinking urban planning and design ideas will reshape this historic campus, creating in the process a more valuable asset to the community and the city while addressing some of the everyday challenges facing San Francisco's neighborhoods.

The Parnassus Heights campus will continue to leverage and integrate the latest transportation solutions and spur local job and economic growth. In addition, the future campus will be a community hub for social, recreational, cultural and educational programs and services. The following are some of the benefits and solutions that we will explore together with our stakeholders and community partners.

2.1. High school student Elshaidaye Asefa served as an intern for the Science and Health Education Partnership Program, a partnership between UCSF and the San Francisco Unified School District that began in 1987. Photo by Steve Babuljak.

2.1. PRACTICAL SOLUTIONS FOR A DYNAMIC NEIGHBORHOOD

- **Improving mobility**
  Improving mobility for pedestrians, public transit, cars, and alternative modes of transportation by creating a new, inviting, user-friendly entry experience from the N-Judah line stop on Irving Street up to Parnassus Avenue.
- **Enhancing Parnassus Avenue**
  Relieving traffic congestion on Parnassus Avenue by redirecting delivery trucks to the back of campus via a service corridor through a newly opened 4th Avenue.
- **Accommodating pedestrians**
  Offering a safer, sheltered, and more convenient way to cross Parnassus Avenue via a proposed pedestrian bridge.
- **Embracing open space**
  Tripling the amount of publicly accessible open space, including a new east-west promenade, an improved "campus heart" with an expanded Saunders Court, better connections between Mount Sutro and Golden Gate Park, and terraces and pocket parks that invite the community onto campus.
- **Increasing campus housing**
  Adding nearly 1,000 campus housing units to ease the city's housing pressures and create new opportunities for neighborhood businesses.

2.2. Children get dental check ups at the School of Dentistry's "Give Kids a Smile Day," one of the many free health screenings that UCSF offers the community. Photo by Barbara Ries.

2.2 LOCAL ECONOMIC IMPACT & CHARITY CARE

2.2 LOCAL ECONOMIC IMPACT & CHARITY CARE

- **Supporting local hiring**
  Spurring job opportunities for San Francisco residents through UCSF's ongoing commitment to its Community Construction Outreach Program (CCOP), a voluntary local hiring initiative that creates economic opportunities, increases local employment in the constructions trades and engages local unions and the city in innovative partnerships[1].
- **Providing access to care for all**
  Providing $273.5 million in uncompensated and charity health care for patients in FY2018.

2.3 COMMUNITY PROGRAMS AND SERVICES

- **Expanding public access**
  Welcoming community members to the Parnassus Heights campus by increasing access to natural landscapes, vistas to the ocean and the Golden Gate Bridge, and an extended public realm with a variety of indoor and outdoor public spaces for fitness, recreation, dining and enjoyment.
- **Hosting public events**
  Enhancing opportunities for social and cultural activities, such as the Farmer's Market, Chancellor's concert series, music in the library, art exhibits and community-wide celebrations and events.
- **Engaging youth**
  Creating opportunities for more hands-on science activities for youth, including the Science and Health Education Partnership which serves K-12 students in 90 percent of San Francisco Unified School District schools and is a national model.
- **Highlighting science**
  Highlighting UCSF's leadership in the life sciences by putting science on display with exhibits and events that showcase the work of the nation's top scientists, scholars, and students.

2.4 COMMUNITY HEALTH AND WELLNESS

- **Ensuring emergency services**
  Serving community health needs to San Francisco's west side neighborhoods with a 24/7 emergency room, outpatient services and advanced adult specialty care.
- **Keeping pace with the community's care needs**
  Increasing our capacity to serve current and projected demand for specialty health care across the city and the region by opening a new, modern, seismically safe, and environmentally sustainable hospital.
- **Delivering holistic care**
  Adopting a holistic, "whole-patient" hospital approach — from leading-edge diagnostic tests and therapies to an optimal healing environment that addresses social, psychological, spiritual, and behavioral components of health in one place.
- **Bringing care to community**
  Hosting "Give Kids a Smile Day" at the UCSF Parnassus Dental Center, just one of many examples of outreach events that UCSF faculty, staff and students conduct on a volunteer basis.

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1. As a result of the CCOP, more than 460 San Francisco resident trade workers contributed over 300,000 hours towards the construction of UCSF Medical Center at Mission Bay. UCSF expects a similar, if not greater opportunity for the new hospital on Parnassus Avenue.

As UCSF begins to advance the Comprehensive Parnassus Heights Plan, we will continue to collaborate with the newly convened Advisory Committee for the Future of UCSF Parnassus Heights. We look forward to partnering with the committee's community leaders, neighbors, merchants and representatives of city agencies and non-profits to explore approaches and solutions that will help UCSF and the community realize the shared opportunities of the new Parnassus Heights campus.

2.3. UCSF physical therapy students Ashlen Paustenbach, left, and Elizabeth Avazian, right, cheer as Jonathan Ferrigno, 7, balances during a challenge at the annual Cole Valley Fair in San Francisco. Photo by Noah Berger.

3 ORGANIZING CONCEPTS

A LEGIBLE CAMPUS

Parnassus Heights will comprise **intuitive wayfinding**, thoughtful adjacencies for efficient workflows, and **easy navigation** between buildings. It will include generous spaces for reception, arrival, and assembly.

The future campus design will allow for **effortless orientation** of the first-time visitor and patient, learners, and employees.

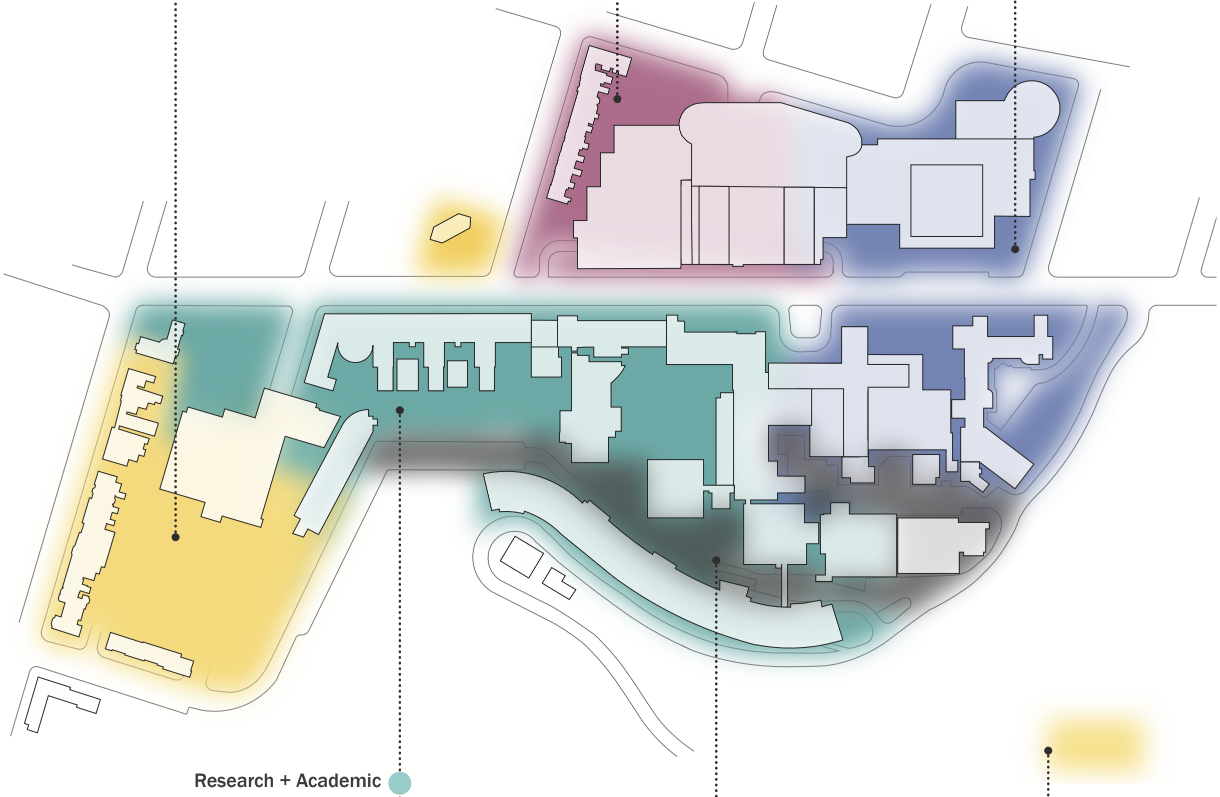
Visible

Intuitive

Organized

3.1 A LEGIBLE CAMPUS

The campus districts consolidate complementary activities for intuitive navigation and efficiency.



West Side
Restore 4th Avenue, provide a home for community amenities, and explore housing on the West Side.

North Side Gateway
Welcome visitors on Irving Street, create public space and make connections from "Park to Peak," and include public-facing programs.

Clinical East End
Consolidate clinical services and improve the holistic patient/visitor experience.

Research + Academic Commons
Develop program spaces for convergence, reinforce the "Campus Heart" at Saunders Court, and support sustainable growth with renovations.

Service Corridor
Develop a back-of-house utility corridor and implement a distributed material management system.

Aldea
Intensify Aldea to address housing demand.

Refreshed garage facades, improved vertical circulation, and clear wayfinding enhance the arrival experience for all visitors.

1. Concept
Improved entry and aesthetic enhancements at Irving Street.

2. Today
Garage entrances with imposing facades on Irving Street.

A COMPACT CAMPUS

A rich sense of the **campus commons** is central to the Parnassus Heights culture. Making the most of the site and magnificent vistas to the coastline, park, and Golden Gate Bridge, the future campus will leverage steep topography with a variety of terraces and outlooks, and use elevators and escalators for **multi-functional connections**.

Buildings will continue to connect at multiple levels to foster **meaningful collaboration** and chance encounters cherished by UCSF faculty, learners, and staff.

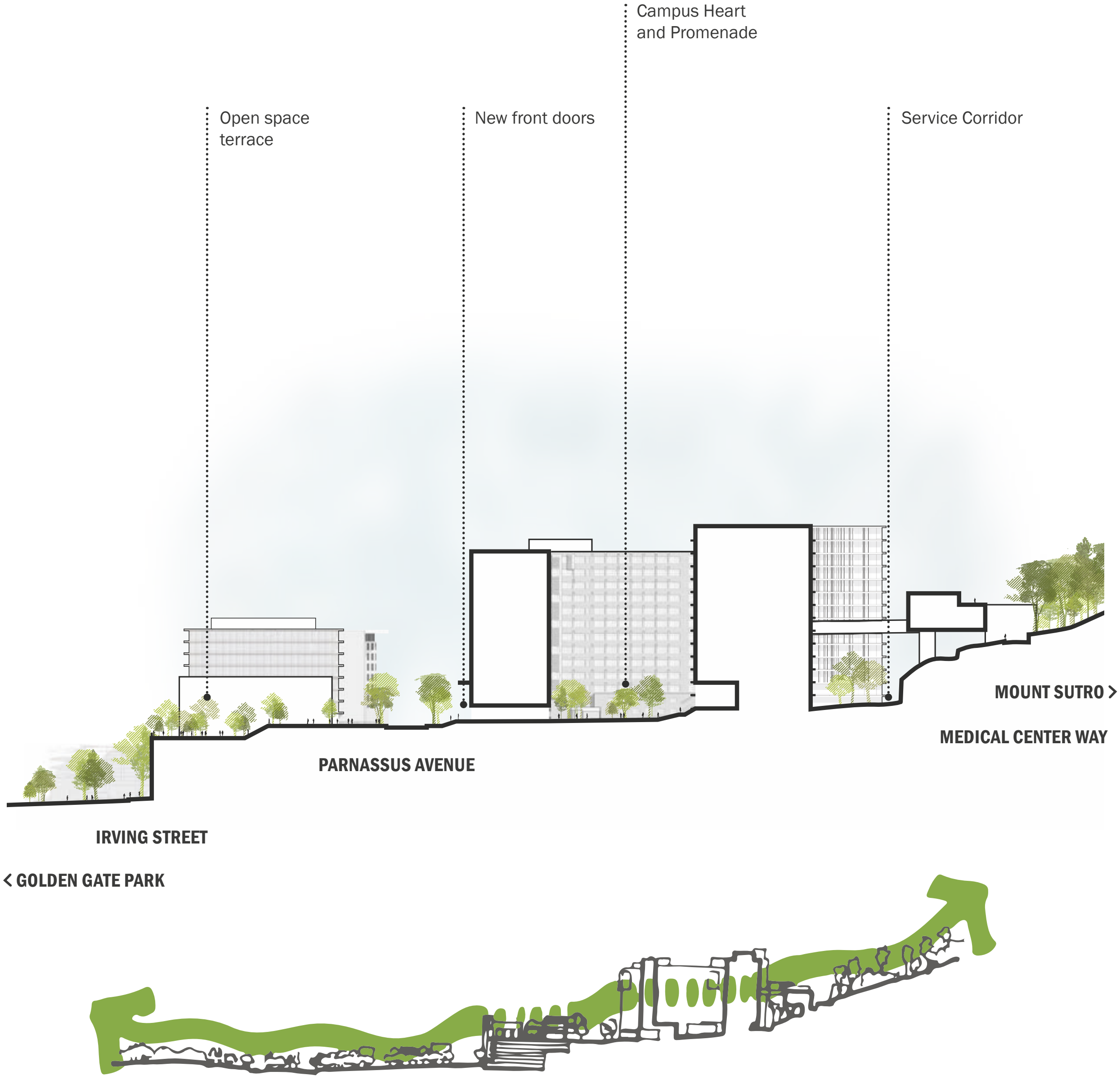
Urban

Vertical

Interconnected

3.2 A COMPACT CAMPUS

A compact campus enables sustainable growth within the existing campus footprint. The campus will be equally defined by its state-of-the-art buildings, as by its framework of open spaces.



A new east-west promenade takes advantage of the elevated topography, improves functionality, and creates unique viewpoints to foster serendipitous encounters.

1. Concept
Campus promenade seen from the West Side at an extended 4th Avenue.

2. Today
Steep staircase to Koret Way, alongside the Dental Clinics.

AN INTEGRATED CAMPUS

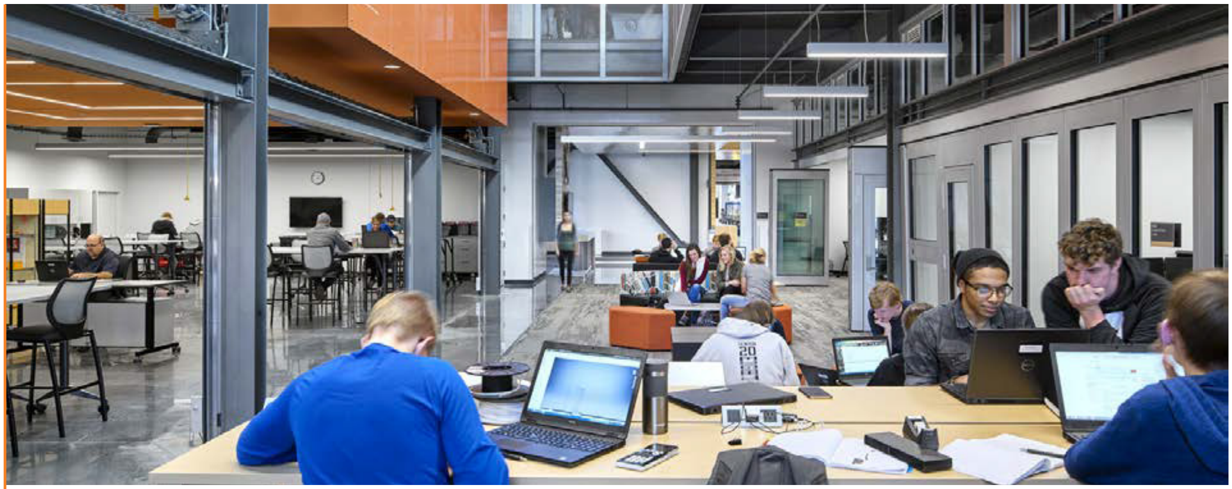
Parnassus Heights will include state-of-the-art, **cross-disciplinary** spaces for collaboration and social gathering to foster an **interactive** academic health center and research community.

New spaces will display UCSF’s **world-class leadership** in health care, education, and scientific discovery.

On-campus connections and pedestrian passages will serve as informal gathering places promoting **convergence** across all disciplines.

Pedestrian

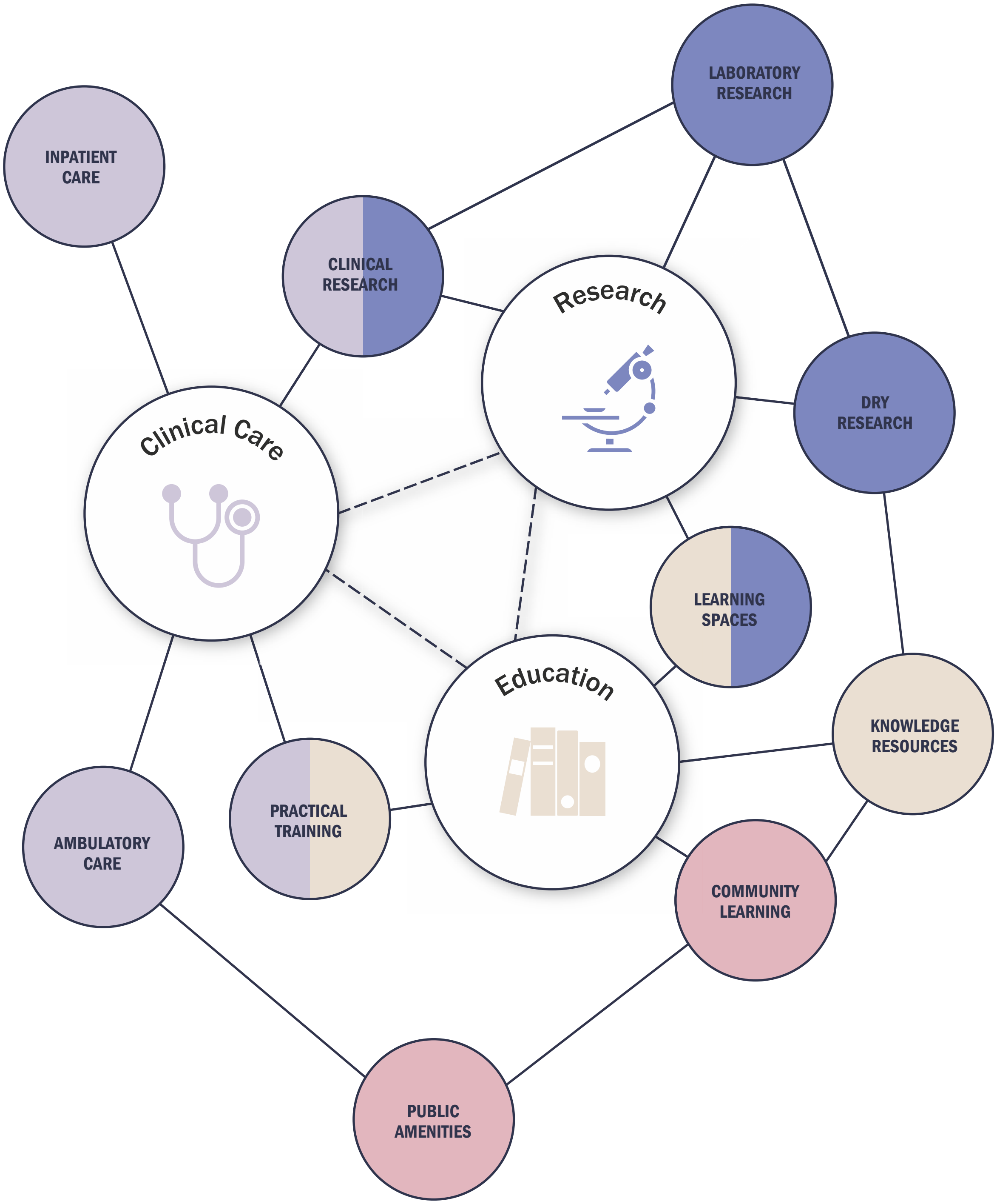
Connected



Cross-disciplinary

3.3 AN INTEGRATED CAMPUS

The future campus will highlight UCSF's achievements in health care, education, and scientific discovery and integrate it with the surrounding community.



The various programs connect the missions and foster convergence.

Saunders Court is expanded as the “heart” of campus, a place of social gathering that fosters an interactive academic health center and research community.

1

For illustrative purposes only: image does not represent architectural design.

2

1. Concept
Saunders Court is a central meeting place and the start of an expanded promenade leading to the West Side.

2. Today
The School of Nursing building blocks the expansion of Saunders Court and views to the west.

A WELCOMING CAMPUS

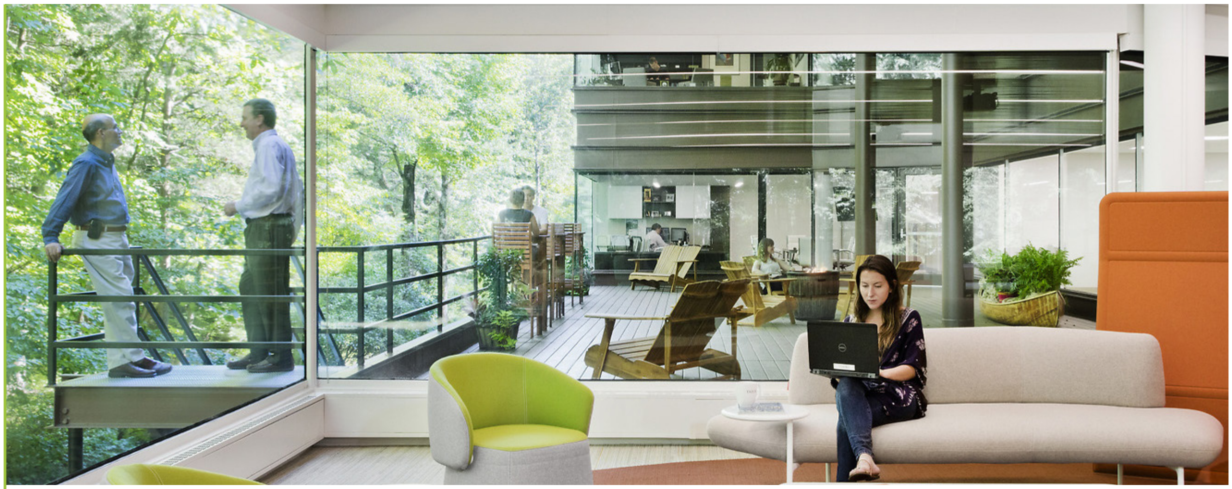
Parnassus Heights reflects its **context** with links between the neighborhood, Golden Gate Park, and the Mount Sutro Open Space Reserve.

The campus has building forms that provide access to natural landscapes and light, an **expanded public space**, refreshed street environments, and a variety of indoor and outdoor places to gather and relax.

The campus landscape will include climate-sensitive gathering places with **year-round functionality** to minimize the effects of fog and wind.

Convivial

Comfortable



Contextual

3.4 A WELCOMING CAMPUS

The campus surroundings, from Golden Gate Park to the Mount Sutro Open Space Reserve, are celebrated through landscapes that permeate the campus from "Park to Peak."

TODAY'S CONDITION

Mount Sutro
61 acres of managed forest with public, multi-use trails

Urban campus
Limited access to green spaces

Golden Gate Park
Public urban park, heavy use

FUTURE LANDSCAPES

Integrated landscapes, with blurred boundaries
The campus connects from "Park to Peak," introducing adapted landscapes that transition from the natural to the urban.

The public space expands to welcome visitors with a variety of comfortable indoor and outdoor spaces, designed for year-round functionality.

1

For illustrative purposes only: image does not represent architectural design.

2

1. Concept
The roof of the Millberry garage becomes a public terrace with climate-sensitive design.

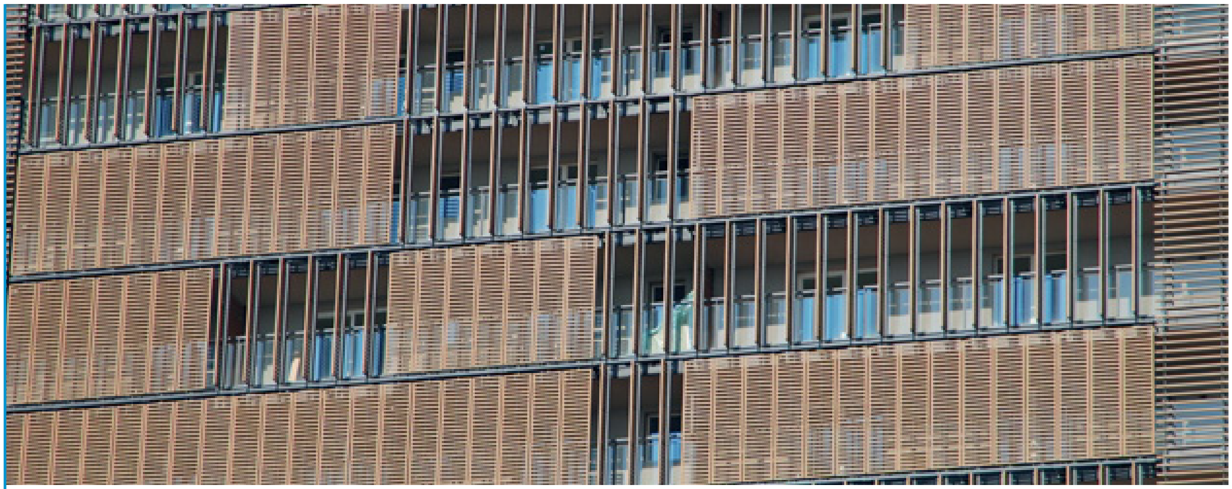
2. Today
The food court obstructs views from Parnassus Avenue and surface parking occupies a central location on campus with views over the park and Golden Gate Bridge.

A WORLD-CLASS CAMPUS

Parnassus Heights will embody a **contemporary architectural vision** for UCSF’s clinical, research, and teaching missions.

The campus will modernize existing facilities to create **healthy and sustainable** environments and apply a resilient, **long-term** approach to the campus evolution.

Contemporary

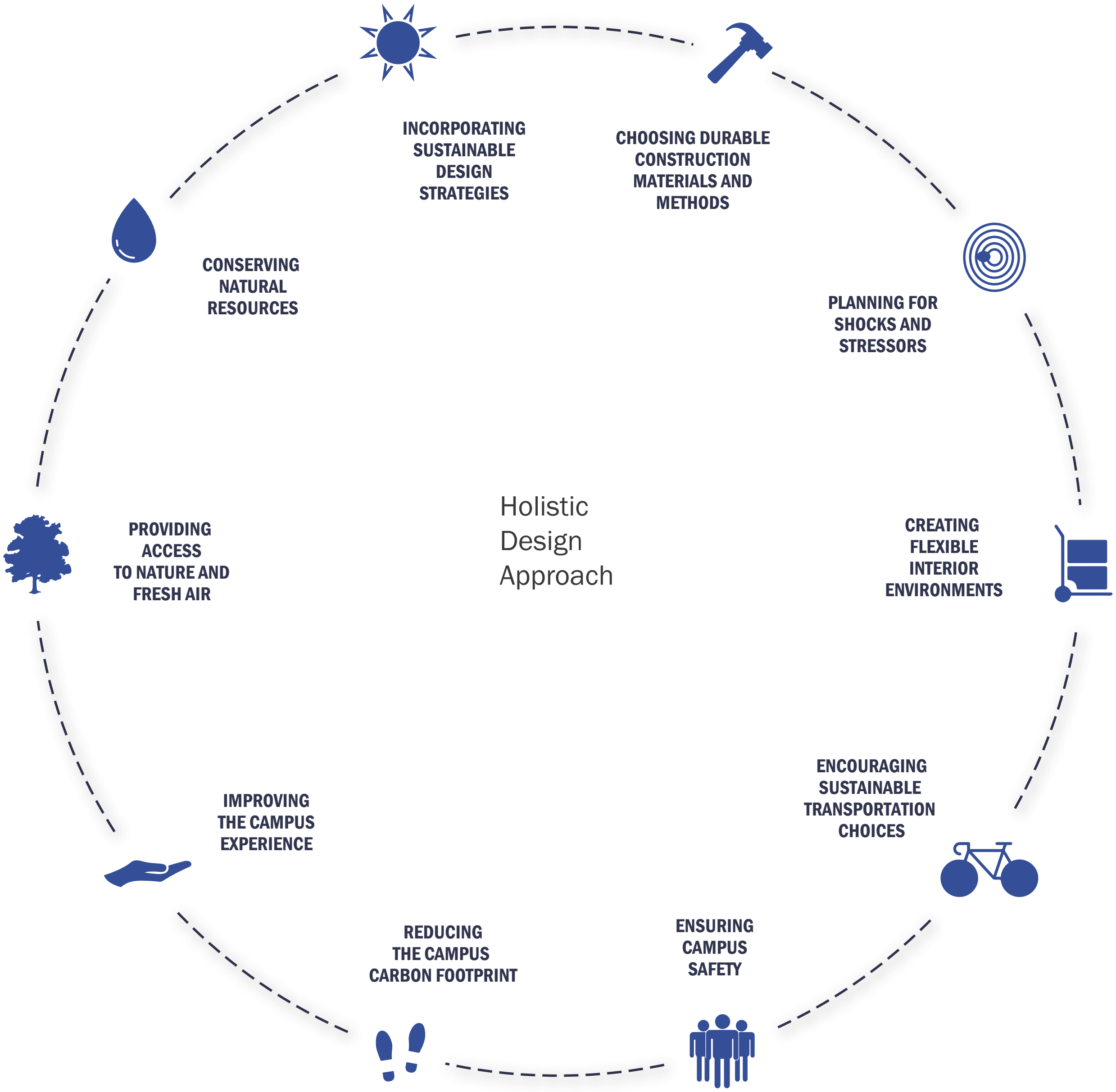


High performance

Resilient

3.5 A WORLD-CLASS CAMPUS

New building approaches will prioritize sustainable systems to promote healthy, resilient spaces and support UCSF's long-term campus vision.



Existing buildings can be renovated to meet contemporary standards and create modernized, refreshed work environments.


1

For illustrative purposes only: image does not represent architectural design.


2

1. Concept
A refreshed Medical Sciences building and an east-west campus connection allow more transparency around the "campus heart."

2. Today
The Medical Sciences building is very opaque and looks dated.

4 NEW PROGRAMS & APPROACHES

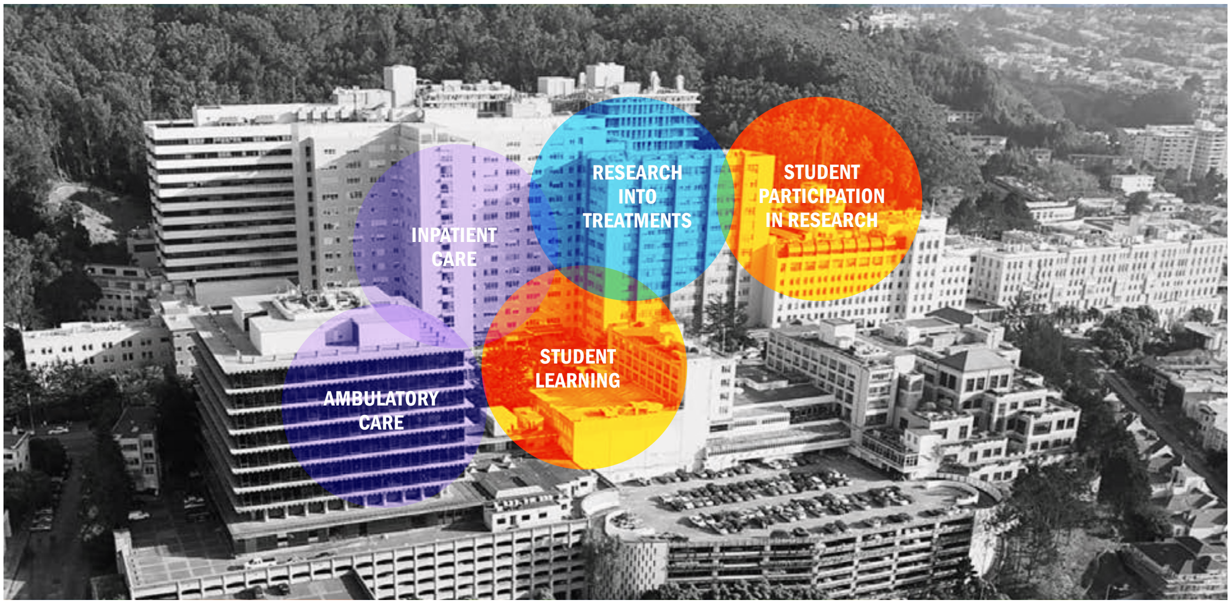
NEW PROGRAMS & APPROACHES

This chapter highlights the unique opportunity at Parnassus Heights to build upon the strength of the scientific community co-located with the UCSF Helen Diller Medical Center, improving the physical environment and further enabling ongoing inter-professional collaboration.

The new world-class hospital at Parnassus Heights for adult care will be open by 2030 and be a key part of UCSF Health, a growing regional health system that includes UCSF Medical Center at Mission Bay. As a core element of the campus, building the new hospital is a key opportunity to reflect the context and vision described in the Plan.

Section 4.2 summarizes findings from campus researchers, faculty, staff, and clinicians and their recommendations for a sustainable, re-envisioned Parnassus Heights. Their reports, formally presented to the Parnassus Master Plan Steering Committee in 2018 and 2019, provide a high-level framework for future education and research platforms, as well as preferred programmatic and operational approaches. The recommendations from all four working groups are aligned on the need to better organize, co-locate, and improve the functionality of spaces, as well as provide new methods to share resources and facilities. Full reports from each group are available in Appendix B.

Section 4.3 presents selected new programs or approaches to support the Parnassus Heights vision by improving the ability of those on campus to **discover, heal, learn,** and **live**. It describes proposed quality of life improvements for the UCSF community, as well as strategies for housing, child care, and other campus amenities. This section also brings forward ways in which the campus might best relate to, and take advantage of, the opportunity afforded by a new hospital building.



4.1. The compact campus at Parnassus Heights offers a unique opportunity for convergence among missions.

4.1 WHY PARNASSUS HEIGHTS?

The Parnassus Heights campus site is the location of the leading hospital for highly specialized tertiary and quaternary adult care in the western half of the United States. UCSF is devoted exclusively to health sciences, and the Parnassus Heights campus site is host to some of the best science in the world from basic and quantitative biomedical sciences to translational and clinical research.

The site's compact physical design contributes to the success of activities conducted within the campus. Broad inquiry and learning in human-centric science benefits from frequent opportunities for collaboration. The current medical center, comprising Moffitt and Long hospitals, has convenient connections on every floor to the research and learning facilities in the Medical Sciences Building and is near the Health Sciences East and West towers. Parnassus Heights research teams are made up of clinicians, learners, faculty, and staff who leverage the full assets of the campus and the proximity to one another to create a wide variety of working partnerships (see Figure 4.1).

Resulting convergence among UCSF's clinical, academic, and research activities encourages the frequent personal connections that can foster collaborations in learning and discovery. Funding from the National Institutes of Health (NIH) for science, clinical trials, and other industry-sponsored studies can benefit from proximity to the hospital, while patients benefit from innovative clinical care.

The re-envisioning of the campus site is an opportunity to highlight the future hospital at Parnassus Heights where new technologies, including telemedicine, robotics, and intra-operative imaging will be embedded and leading clinicians and scientists are focused on translating discoveries into treatments and cures for conditions ranging from diabetes to neurological diseases to organ failure.

4.2. Key activities at Parnassus Heights.

4.2 WORKING GROUP FINDINGS

Research Space Working Group

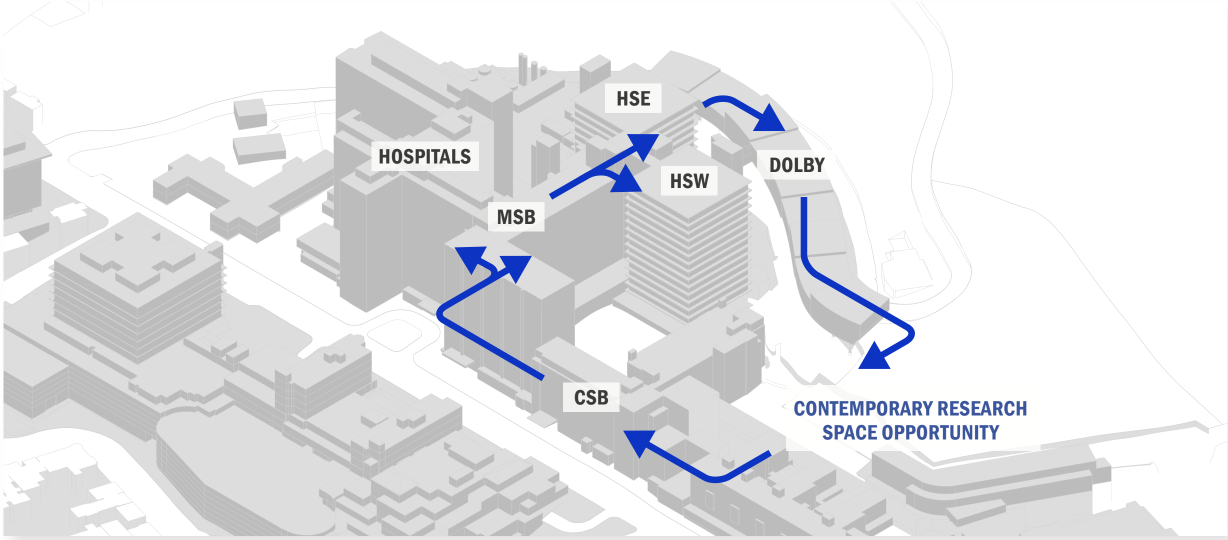
UCSF convened a Research Space Working Group (RSWG) with representatives from its four schools. The RSWG conducted a review of Parnassus Heights research activities and assessed research space condition and utilization, quality and function of associated infrastructure, and areas of programmatic strength. The process also incorporated a large survey with research staff and faculty and "benchmarking" to compare spaces at Parnassus Heights with national and international peer institutions.

The RSWG vision for Parnassus Heights is an integrated campus comprising world-class health science research, cutting edge patient care, and the highest quality educational programs.

The RSWG envisions a magnet science community at Parnassus Heights that is home to a blend of basic, clinical, and translational research activities, each with a critical mass of faculty.

The group recommends immediate expansion and transformation of the Parnassus Heights research campus to address challenges and deficiencies in the current space infrastructure and to allow future expansion. High-level recommendations are summarized on the following page.

Additional information on the physical design of research space can be found in Chapter 8, Best Practices.



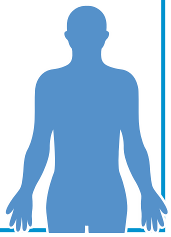
4.3. The RSWG proposed two new program spaces on campus and stronger connection between all research buildings.

RESEARCH SPACE WORKING GROUP RECOMMENDATIONS

- **Renovate existing research facilities** (approximately 1/3 of Parnassus Heights space) to contemporary standards. Good condition research space is currently utilized at higher than ideal density, while suboptimal space is underutilized.
- **Expand basic research infrastructure** through construction of a new research building to accommodate growth of existing programs and development of new programs. New basic research space will allow renovation of older existing research buildings (Health Sciences East, Health Sciences West, and Medical Sciences) to modern research building standards.
- **Provide flexibility** for research spaces that meet future needs, with new programs across the research spectrum and in emerging disciplines (i.e. artificial intelligence, microbiome).
- **Expand the clinical research infrastructure** through construction of a Center for Innovative Medicine (CIM) to accommodate growing and successful programs in patient-centered research. The CIM will be a home for patient-facing clinical research at Parnassus Heights and an enabling resource for world-class clinical and translational research at UCSF.
- The new basic and clinical research buildings could be one **large, modern, and inspiring** new research building that is a centerpiece for the rejuvenated Parnassus Heights.
- Parnassus Heights research should continue to be **centrally located** near Saunders Court so that the research community can interact easily and have shared spaces for academic and social interactions.
- In addition to the CIM, other **clinical research recommendations** include designated research areas in the new hospital and clinics and to provide an Overnight Stay Clinical Research Unit in the hospital.
- Create space that fosters **programmatic collaboration** across the spectrum of basic, computational, translational, and clinical investigators, to advance the goal of cutting-edge human-centric science.
- **Accelerate integrative human-centric science** with research infrastructure for programs, technologies, and core resources (i.e. CoLabs) that bridge basic and clinical research (i.e. big data, bioengineering).

A unique opportunity to create transformative new space for research and discovery:

- ► Realize the potential of outstanding research programs.
- ► Pioneer clinical research.
- ► Cultivate exciting new programs.
- ► Advance a vision for impactful integrated research.
- ► Attract and retain talented faculty and trainees.



4.2 WORKING GROUP FINDINGS

Education Space Working Group

Led by the Campus Librarian, the Education Space Working Group (ESWG) comprised a range of educational leaders, faculty, and staff from across the academic enterprise. The ESWG engaged with stakeholders in all education mission areas, including students; conducted an inventory of current shared and departmental educational spaces; and explored the intersection of educational space with clinical and research space on the Parnassus Heights campus.

The ESWG raised several concerns. First, the spaces critical to UCSF's top-ranked educational programs are scattered across the campus; without a central location, they lack visibility and the opportunity for interprofessional interactions. Second, classrooms are insufficient in number, format, location, and quality. Third, classrooms are often used during the day by faculty, staff, and students for purposes other than educational activities. A classroom utilization analysis showed that more than half of scheduled time in classrooms is for non-class meetings. Fourth, education space has historically been narrowly defined as classrooms and learning labs whereas, given the all-consuming nature of graduate and health professions education, there is a critical need for flexible spaces to accommodate student learning resources and wellbeing activities, peer engagement opportunities, and student-faculty advising and mentoring. This latter deficit will become critically apparent as we move to open workspace faculty environments.

For the foreseeable future, UCSF five professional degree programs will be primarily based at the Parnassus Heights campus site. Thus, it is imperative that the campus reflect the quality and national reputation of these educational programs. Furthermore, the campus must be designed to anticipate and support the evolution of innovations in educational practices. The campus must accommodate the whole education population continuum, including health professions students, residents, graduate students, faculty development, and continuing education. The ESWG also envisions an innovative central education core to support active learning and interprofessional pedagogies, with a robust reimagine of the spaces in which education occurs. This will require modernization of current space and expansion of total educational space, broadly construed.

Recognizing the amount of time that students spend on campus, the ESWG also focused on fostering a welcoming and stimulating environment

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Samuel *he/him/his*
Professor and Surgeon
Primary campus: Parnassus
Time on Parnassus: 16 hours

PAIN POINTS: There is no surgical skills lab in hospital, he does not have much interaction beyond hospital.
NEEDS: Designated academic areas in hospital, space to facilitate interactions outside the hospital.

Brianna *she/her/hers*
2nd Year Pharmacy Student
Primary campus: Parnassus
Time on Parnassus: 10 hours

PAIN POINTS: She has difficulty finding space to meet, wants more comfortable areas on campus.
NEEDS: Modular space to get work done, living room space for informal learning, more access to student wellness services.

4.4. This "Day in the life of" exercise as abstracted from the ESWG report explores the needs of various populations and user groups.

for them. The future of Parnassus Heights should feature new spaces that support wellbeing, including housing and recreational amenities, while providing ample opportunity for intersections among the student, clinical, and research communities. The group advocates for a future campus design that provides many options for informal, convenient small group meetings.

Additional information on the Best Practices for the design of education space can be found in Chapter 8.

EDUCATION SPACE WORKING GROUP RECOMMENDATIONS

- **Optimize educational space for learners** Create a visible hub of educational spaces for the health professions programs; expand the number and variety of classrooms; modernize existing space; and incorporate innovative and flexible spaces into the design of clinical and research buildings.
- **Expand simulation learning spaces:** Dramatically expand clinical simulation spaces to support the development of a variety of professional clinical skill sets and interprofessional learning activities, inclusive of the needs of employed UCSF Health professionals.
- **Integrate educational space into research and clinical buildings:** Ensure that designated space for learning and teaching exists in all clinical and research buildings.
- **Foster student-faculty interactions and interprofessional education through intentional design principles:** Create spaces that facilitate interdisciplinary engagement between faculty and learners in all schools and programs.
- **Embrace a holistic view of educational space:** Utilize the wealth of empirical data that documents the critical nature of space beyond classrooms to support student wellbeing, professional development, and social engagement to optimize learning and ensure student success.

Muthamma *she/her/hers*
Associate Professor
Primary campus: Mission Bay
Time on Parnassus: 7.5 hours

PAIN POINTS: She gets lost in buildings when visiting Parnassus, consistently has issues with Zoom, always in search of space to meet.
NEEDS: More flexible spaces to informally meet, modern classrooms with video-conferencing.

Aubrey *they/them/theirs*
First Year Biomed Student
Primary campus: Parnassus
Time on Parnassus: 12 hours

PAIN POINTS: They spend the majority of time in lab, missing out on student experience; feel siloed.
NEEDS: Sense of community, more formal interdisciplinary learning and collaboration, informal settings to interact with faculty and peers.

4.2 WORKING GROUP FINDINGS

Digital Hub Working Group

Located in the heart of the Bay Area technology ecosystem, UCSF is uniquely positioned to play a leadership role in driving and shaping digital health innovations as patient advocates and experts in research, patient care, and education.

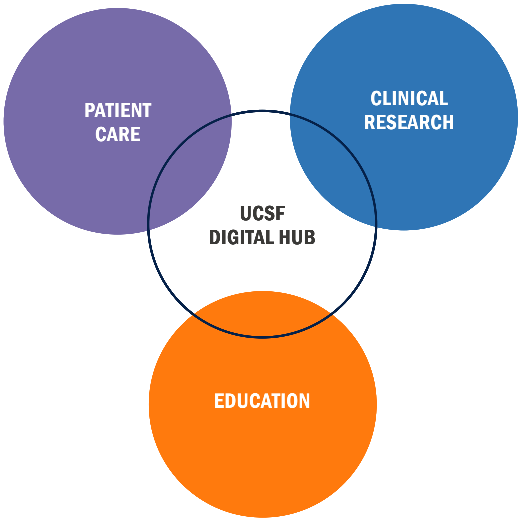
UCSF has some of the world's most preeminent faculty and organizations working on digital health. But work in these groups—which spans clinical informatics to digital clinical research, to app development, to implementation science, to collaborations with Bay Area companies—is often siloed. It is harder for both internal and external stakeholders to gain a big picture of the work happening across the UCSF digital health enterprise, to create synergies and simplify engagements for those seeking to work with them.

In response, the Digital Hub Working Group (DHWG) proposed formation of a new "Digital Hub" to better connect and accelerate digital health innovations in clinical and translational research and care transformation.

The DHWG has already spurred substantial new efforts: developing tools and resources that help researchers navigate and locate resources more efficiently; creating a global database of digital health projects across campus; and elevating communications and market presence in digital health with the goal of attracting top digital talent and new external partners.

A first-class home for the Digital Hub at Parnassus Heights would allow digital teams to convene, create, and scale breakthrough innovations. Co-working space will enable researchers, clinicians, faculty, students, and external partners to incubate and accelerate new ideas; prototype with the latest technologies; test deployment of new products and services for frontline care in simulated environments; and share and build new skills through trainings and symposiums.

The vision for the Digital Hub is to fortify UCSF's position as the premier academic medical center in the world for digital health innovations.



4.5. The Digital Hub will focus on digital innovation at the convergence of translational and clinical research, patient care, and education.

DIGITAL HUB WORKING GROUP RECOMMENDATIONS

- A first-class facility to function as home base for digital health innovators.
- Co-working space for internal teams, entrepreneurs-in-residence, and incubator companies.
- Clinical simulation and testing environments for care delivery concepts (e.g., Hospital Ward of the Future, Clinic of the Future, Hospital at Home).
- Prototyping spaces equipped for exploratory 3D printing, robotics, sensors, virtual reality, etc.
- Executive meeting and event facilities.
- Educational programming and training.

UCSF Digital Hub Four Core Areas:

- ► Entrepreneurship & Innovation
- ► Simulation & Testing
- ► Collaboration & Resources
- ► Education & Training

4.2 WORKING GROUP FINDINGS

Central Research Labs/CoLabs Working Group

The Central Research Labs Working Group (CRLWG) developed a scope and programmatic concept for a central research lab facility, referred to as “CoLabs.” It will house critical personnel matched with cutting edge methods and technologies to enable innovative life science research and promote collaboration in research across a wide range of disciplines.

CoLabs is a common space that brings together core functions, staffed by related researchers from various departments to look at diseases in a complementary and collaborative way. The centrality of the CoLabs location is key to bridging between geographically dispersed labs across the campus.

CoLabs brings together a wide array of disciplines, including scientists, health professionals, and trainees, as well as industry partners, to create and bring new breakthroughs to patients.

The CRLWG also proposes an entirely new model for providing a range of core methodologies to all faculty, facilitating the analysis of patient samples, developing new technologies, and creating new learning opportunities for both trainees and faculty.

COLABS RECOMMENDATIONS

- Make the CoLabs a **transformational resource** for the Parnassus Heights campus.
- Develop a **state-of-the-art centralized facility** to bring together experts and cutting edge equipment.
- Support a new culture of **collaboration** and innovation.
- Embed investigators and projects within the CoLabs to **accelerate research.**
- Provide **standardized pipelines** for analysis of samples and develop a shared data library.

COLABS AND THE INNOVATION SANDBOX

- CoLabs is envisioned as a key component of a new ecosystem of human-centric science at Parnassus Heights.
- Research lenses to study the interrelationships between seemingly different diseases.
- Fast learning and new personalized treatments: Breakthrough Cure Factory.
- Shortened bench-to-bedside trajectories.
- Embedded and UCSF-aligned commercial incubators to provide the fastest path to new cures.

4.3 NEW PROGRAM APPROACHES

The introduction of new programs and strategic approaches will contribute to the future success of Parnassus Heights. The following section explores how the re-envisioned campus could offer improved environments with new approaches to discover, heal, learn, and live on campus.

Parnassus Heights will benefit from logical programmatic adjacencies and synergistic pairings, enhancing the experience for the UCSF population and its visitors and promoting campus legibility. The program approaches have emerged from workshops, public outreach, surveys, and stakeholder interviews associated with the CPHP process. They helped form a vision for an integrated and translational campus that introduces new spaces for existing and future campus activities.

> “At Parnassus Heights, I can see a patient in a **clinic**, walk to a lab, and **take samples down the hall.** Then I use this information to more precisely **diagnose and treat the patient.**”
>
> — UCSF Faculty

These space types range from work space “hoteling” to the introduction of housing on the West Side of campus, to a distributed model for retail, dining, and convenience services:

- Academic Areas in Clinical Environment
- Designated Areas for Patient-Centered Research
- Concourse
- Forum
- Living Room
- Faculty/Staff Workspace Hoteling
- Science on Display
- Incubator Space
- Wellness Facilities
- Patient Family Lodging
- Food, Beverage, Retail

Information summarizing programmatic drivers, potential locations, preferred adjacencies, precedents, and attribute descriptions for each of these new space typologies follow.

4.3 NEW PROGRAM APPROACHES

Academic Areas in Clinical Environment

DESCRIPTION

- Space in major clinical units of new and renovated clinical buildings (UCSF Health).
- Informal learning spaces, adequate for individual and collective study.
- Flexible meeting spaces for clinical research staff, small group learning sessions, and private conversations.
- Simulation and other clinical skills spaces.

PROGRAMMATIC DRIVERS

① Convergence
Supports collaboration among students and trainees.

② Convenience
Provides secure areas to leave items and to conduct training.

③ Community
Fosters an educational community within major clinical care units.

④ Translation
Facilitates exchanges between junior and senior clinicians and trainees.

ADJACENCIES

- Convenient access to school centralized services.
- Embedded in clinical areas.

POTENTIAL DEPENDENCIES

- Coordination with new hospital planning.
- Coordination with renovations in existing clinical departments.

Central gathering location

Designated Areas for Patient-Centered Research

DESCRIPTION

- Space embedded in clinical care areas.
- Overnight stay clinical research units to enable clinical studies requiring extended periods of participant monitoring.
- Can be relatively small areas focused on recruitment and simple clinical studies or larger area that facilitate more complex trials in cancer patients.

PROGRAMMATIC DRIVERS

① Proximity

Allows easy access to research participants for clinical research staff.

② Regulations

Responds to need for spaces for research in clinical settings.

③ Recruitment

Showcases UCSF research and enables recruitment.

④ Collaboration

Promotes collaboration between pharmaceutical, technical, and research staff.

ADJACENCIES

- Embedded within clinical care spaces, including the clinics, hospital wards, emergency rooms, and diagnostic spaces.
- Extension of other clinical research space.

POTENTIAL DEPENDENCIES

- Coordination with space regulations for research spaces within clinical settings.
- Potential for space sharing with educators.
- Reliance on grants and funding, coordination with staffing schedules, and FTE estimates.

Dedicated spaces with patient portal

Proximity to clinical functions

4.3 NEW PROGRAM APPROACHES

Concourse

DESCRIPTION

- High visibility, secure, and climate-controlled travel route across campus.
- Populated with complementary programs such as shared technical resources for faculty and researchers, secure meeting locations, and specialty support centers.

PROGRAMMATIC DRIVERS

① **Commons**	② **Connection**	③ **Legibility**	④ **Convenience**
Facilitates cross-disciplinary interaction across campus.	Connects between research, academic, and clinical destinations.	Puts forward a well-defined primary route through campus.	Allows for centralized access to shared programs and facilities.

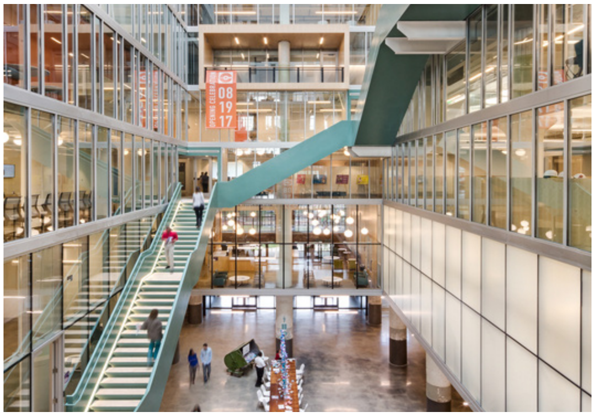
ADJACENCIES

- Close to the forum, dining venues, and other social spaces.
- Access to and from vertical circulation cores.
- Location on floors with a restricted access strategy.

POTENTIAL DEPENDENCIES

- Coordination with a comprehensive design and programming exercise.
- Connection throughout renovated and new structures, between research facilities and clinical spaces.

Cross-campus connection



Convenient access

Forum

DESCRIPTION

- Multi-purpose large assembly space.
- Multi-level atrium with informal meeting spaces.
- Open seating area with an emphasis on transparency and flexibility.
- Memorable, welcoming features for the public.
- Primary campus meeting place and location for events.

PROGRAMMATIC DRIVERS

❶ Community

Provides a venue for campus lectures and public functions.

❷ Campus core

Co-locates experiences and signature events in a central location.

❸ Serendipity

Allows cross-campus encounters in a creative hub.

❹ Collaboration

Supports campus interaction and collaboration.

Multi-level activated atrium

ADJACENCIES

- Public access, central location.
- Near major arrival point.
- Access to and from major program areas on campus.

POTENTIAL DEPENDENCIES

- New construction in identified opportunity site.

Living Room

DESCRIPTION

- Flexible spaces for meetings and collaborations.
- Options for food and beverage (cafes or coffee carts).
- Comfortable seating areas to unwind and socialize.
- Calm, quiet environment that supports solo and group work.

PROGRAMMATIC DRIVERS

① Convergence

Connects faculty and students in an informal setting.

② Liveliness

Fosters a lively environment between classes.

③ Aesthetics

Provides beauty through natural light and outdoor access.

④ Convenience

Features on-demand meeting space, social areas, and amenities.

ADJACENCIES

- Proximity to instructional activities.
- Adjacent to Saunders Court or other public realm landmarks.
- Central location.

POTENTIAL DEPENDENCIES

- Inclusion in new buildings or renovated space.
- Coordination with on-going improvements at Saunders Court.

Informal seating

Central place to unwind

Faculty/Staff Workspace Hoteling

DESCRIPTION

- Secure space with access to desks, charging outlets, and conferencing systems.
- Flexible seating and meeting spaces with distributed locations to reduce travel time to and from other campus activities.
- Reservation and check-out systems.
- Places to store items for longer periods when not in use.
- Available during and after business hours.

PROGRAMMATIC DRIVERS

① Flexibility

Accounts for accessibility and adaptability concerns.

② Security

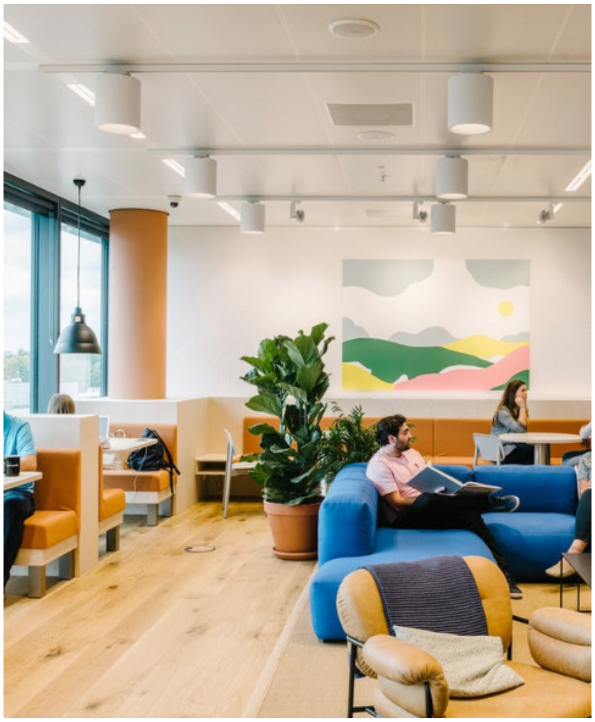
Supports a secure environment with an access restriction strategy.

③ Convenience

Responds to need for meeting places on campus.

④ Convergence

Allows flexible staff movement and cross-campus collaboration.



Convivial, flexible work spaces

ADJACENCIES

- Close to teaching and research spaces.

POTENTIAL DEPENDENCIES

- Associated with potential campus concourse.

4.3 NEW PROGRAM APPROACHES

Science on Display

DESCRIPTION

- Distributed exhibition spaces to educate the public and visitors about UCSF's cutting-edge breakthroughs.
- Community/public access.
- Information on UCSF legacy to inspire visitors, faculty, and students.

PROGRAMMATIC DRIVERS

① Informative

Shares knowledge about cutting-edge activities at UCSF.

② Inspirational

Inspires students, staff, and visitors with UCSF's legacy.

③ Trust

Helps UCSF develop its image beyond that of a medical center.

④ Public

Welcome public to understand the institution's impact.

ADJACENCIES

- At campus arrival points and major building entrances.
- Ground floor locations near the hospital, public spaces, or library.
- Locations with excellent views.

POTENTIAL DEPENDENCIES

- Inclusion in new buildings or renovated space.

Inspiring environment

Visible activities

Incubator Space

DESCRIPTION

- Contemporary lab space, fitted yet flexible to adapt to chemistry, bioengineering, and biological research layout needs.
- Modern office designs, with meeting spaces for UCSF collaborators.
- Access to research areas while maintaining separation for privacy or space ownership considerations.
- Tools for networking and partnerships.

PROGRAMMATIC DRIVERS

❶ Convergence

Supports interaction across research and clinical groups.

❷ Partnerships

Allows for opportunities to work with industry research partners.

❸ Serendipity

Promotes interactions to foster discoveries.

❹ Innovation growth

Supports continued excellence on campus.

ADJACENCIES

- Separation from campus functions with controlled access to limit security issues and concerns.
- Proximity to program spaces for socialization between partners, students, and researchers.

POTENTIAL DEPENDENCIES

- Inclusion in new buildings or renovated space.
- Coordination with new research and educational facilities.

Interaction

Conferencing

Wellness Facilities

DESCRIPTION

- Contemporary wellness center and healing environment.
- Recreational amenities (pool, equipment, fitness rooms).
- Access to natural light, views, and greenery.
- Spaces for mind and body restoration.
- Spaces for seminars and learning to support healthy choices and living.

PROGRAMMATIC DRIVERS

1. **Healthy lifestyle**

   Improves clinical outcomes through exercise and recovery.

2. **Holistic Healing**

   Proposes comprehensive cures that consider the whole person.

3. **Restoration**

   Applies biophilic principles, with views and access to nature.

4. **Inclusivity**

   Provides community amenities: events, seminars, and education.

ADJACENCIES

- Convenient access to physical therapy users and patient recovery.
- Locations with uplifting views and natural light.
- On-street location or convenient street access.

POTENTIAL DEPENDENCIES

- Integration with human-centric research efforts in physical therapy, health, and wellness.
- Coordination with new construction opportunities.

Contemporary designs

Views to nature

Patient Family Lodging

DESCRIPTION

- Housing for longer term outpatient stays and inpatient families.
- Access to specialized staff to foster a sense of community and appropriate response to clinical needs.
- Private entrances or lobby.
- Standard rooms with some larger units dedicated to families and potential communal kitchens.
- Visual privacy and outdoor spaces.

PROGRAMMATIC DRIVERS

❶ Affordability

Remains cost attainable for a wide range of users groups.

❷ Community

Creates communal, welcoming, and warm environments.

❸ Short Term

Supports short-term stays for visiting caregivers and families.

❹ Proximity

Allows loved ones and family to stay close-by and provide support.

ADJACENCIES

- Street access.
- Proximity to dining and other amenities.
- Convenient location to/from hospital entry.
- Access to parking.

POTENTIAL DEPENDENCIES

- Coordination with new hospital planning.
- Associated real estate and financial feasibility studies.

Communal kitchen

Welcoming lobby spaces

4.3 NEW PROGRAM APPROACHES

Food, Beverage, Retail

DESCRIPTION

- Distributed dining options across campus.
- Diverse, local, and healthy food venues.
- Lifestyle dining, pubs, small coffee kiosks as feasible.
- Convenience store network such as pharmacy, small grocery, dry cleaners, or other services useful for day-to-day living.
- Ample natural light, comfortable seating, and welcoming features.

PROGRAMMATIC DRIVERS

1 Holistic health

Supports UCSF wellness mission through healthy and diverse food options.

2 Convenience

Anticipates the needs of daily users and long-term visitors.

3 Community

Strategically ties into the existing neighborhood business networks.

4 Social

Fosters sense of social community around healthy lifestyles.

ADJACENCIES

- Distributed locations with easy access to/from main buildings on campus.
- On-street entry for most venues.
- Some food and beverage services embedded within campus buildings.

POTENTIAL DEPENDENCIES

- Coordination with new hospital and associated services programming.
- Inclusion in new buildings or renovated space.


Neighborhood style food venue

Convivial social space

In addition to campus research spaces, such as hybrid, wet, and dry labs with associated support areas (see Best Practices in Chapter 8), the vision for Parnassus Heights accomodates a range of activities in the support of science and discovery. The vision for Parnassus Heights also gives new emphasis to sharing UCSF's scientific achievements with the public with "Science on Display." These spaces aim to bring together the key participants in UCSF's activities to foster convergence between mission areas and further highlight the University's achievements for the community.

Alongside the modernization of classrooms (see Best Practices in Chapter 8), new learning spaces support an increase in desired interactions between learners, faculty, and researchers as well as more space for applied learning experiences. New generous spaces foster casual gatherings to more formal collaboration and suggest the need for a centralized convening location that does not currently exist at Parnassus Heights, such as the "Forum." Additional projects are also being considered for the Kalmanovitz Library, leveraging its resources as part of the core learning areas on campus.

The clinical enterprise at Parnassus Heights includes the adult care hospitals, outpatient clinics, and clinical research activities. Today, an estimated 26% of the campus space is dedicated to clinical activities. UCSF Health plans to construct a new adult care hospital at Parnassus Heights by 2030, conceived as "The Hospital of the Future."[1] The campus site and hospital can leverage this opportunity to create a broad variety of spaces for physical, emotional, and social wellness. In the future, care will extend beyond the four walls of the hospital and the campus will emphasize hospitality and holistic wellness as integral to design.

Clinical spaces are designed to support the translational mission on campus, including areas that facilitate collaboration, and interactions between researchers, faculty, and patients.

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[1] Brand Bureau Concept Presentation, *Hospital of the Future at Parnassus Heights*, UCSF Helen Diller Medical Center, October 2018.

The Hospital of the Future is The Healing Habitat, a holistic experience and environment that fosters wellness for all.

4.6. "The Healing Habitat" concept is a holistic approach to healing.

4.3 NEW PROGRAM APPROACHES

“HOSPITAL OF THE FUTURE” VISION (BRAND BUREAU)

- The Hospital of the Future is a new kind of hospital. It’s a place that invites people in (patients, providers, and learners) and reflects the culture and diversity of its community. It is grounded in treating people as individuals and responding to the holistic needs of all of its users.
- The hospital should be more than a treatment center: it is a thought leader, health influencer, and a platform for all-round wellness.
- **Symbiotic spaces:** Future hospitals will need to create spaces that consider human interaction holistically.
- **Anticipatory design:** Design that not only predicts the needs and wants of users, but also adapts to them.
- **Connective technology:** Technology will become a conduit for seamless human connection and a gateway to the world.
- **Communal recovery:** Hospitals as connectors, enabling continued care and support among at-home patients.
- **Holistic care:** Hospitals focus on individualizing care experience based on each and every patient.
- **Healing environments:** Future hospitals will not only treat patients but also foster healing and overall wellbeing.
- **Lifestyle dining:** Food programs will fully integrate into the experience as a core component of healing.
- **Integrated retail:** Rather than occupying dedicated spaces, retail will be seamlessly incorporated.

Five Imperatives for the Hospital of the Future:

- ► Create spaces that heighten physical and emotional health.
- ► Be porous—an influential healing presence within its community.
- ► Be an industry thought leader and platform for information sharing.
- ► Establish a human relationship between the individuals and the institution.
- ► Offer an experience that seamlessly adapts to users’ needs and lifestyles.

UCSF's diverse, active population spends long hours on campus, and is a significant contributor to its local neighborhood. A re-envisioned Parnassus Heights can enhance work-life balance for employees and students. Additionally, it will provide a range of convenient amenities both for the campus daily population and its nearby neighbors. New opportunities to live on or near campus will give back time and energy to users, increase social opportunities, and limit vehicular trips.

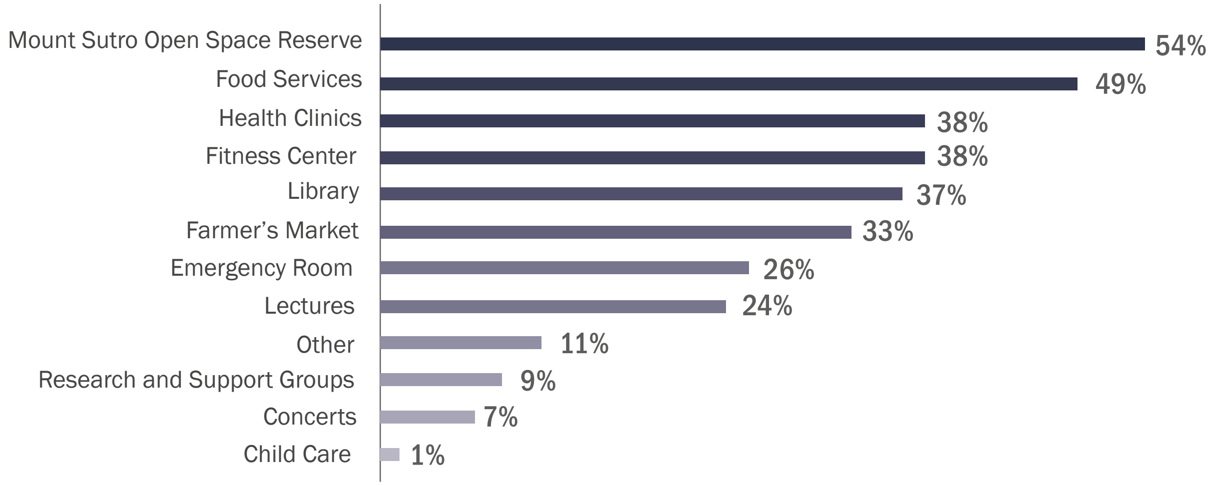
A New Approach to Housing

To better manage extreme costs of living in San Francisco and offer a stable housing supply to its population, UCSF is exploring how to grow its overall housing portfolio. Affordable, accessible housing options are critical to the successful recruitment of faculty and students, as well as long-term employee retention.

Currently, housing across all UCSF sites totals 1,251 units of faculty and student/trainee housing. The estimated demand in 2025 for student/ trainee housing is 2,030 units. Estimated demand for faculty housing is 345 units, predominantly for incoming junior faculty.

The Tidelands (Minnesota Street housing), opened in 2019, added 595 units for students and trainees. The 2130 Post Street property will add 70 faculty units in 2020. A phased plan for student housing at UC Hastings would add 341 units to UCSF's housing portfolio (see Figure 4.10).

A range of housing types and configurations were explored during the CPHP process resulting in some conceptual approaches for housing. These included student and trainee housing, faculty housing, long-term stay (i.e. patient and family lodging), and workforce housing.



4.7. Most frequently used programs and amenities at UCSF Parnassus Heights by the local community.
Data from 2018 UCSF Parnassus Heights Campus Neighborhood Survey.

4.3 NEW PROGRAM APPROACHES

Faculty and workforce housing types were tested both with and without on-site, dedicated parking, while student/trainee housing types were assumed without dedicated parking.

Unit size and mix assumptions, as well as relative construction costs were based on UCSF existing housing developments and conceptual studies. UCSF housing is typically subsidized at below market rates and must be carefully tailored to each user group, with distinct attributes for location, unit size and type, rates, and lease terms.

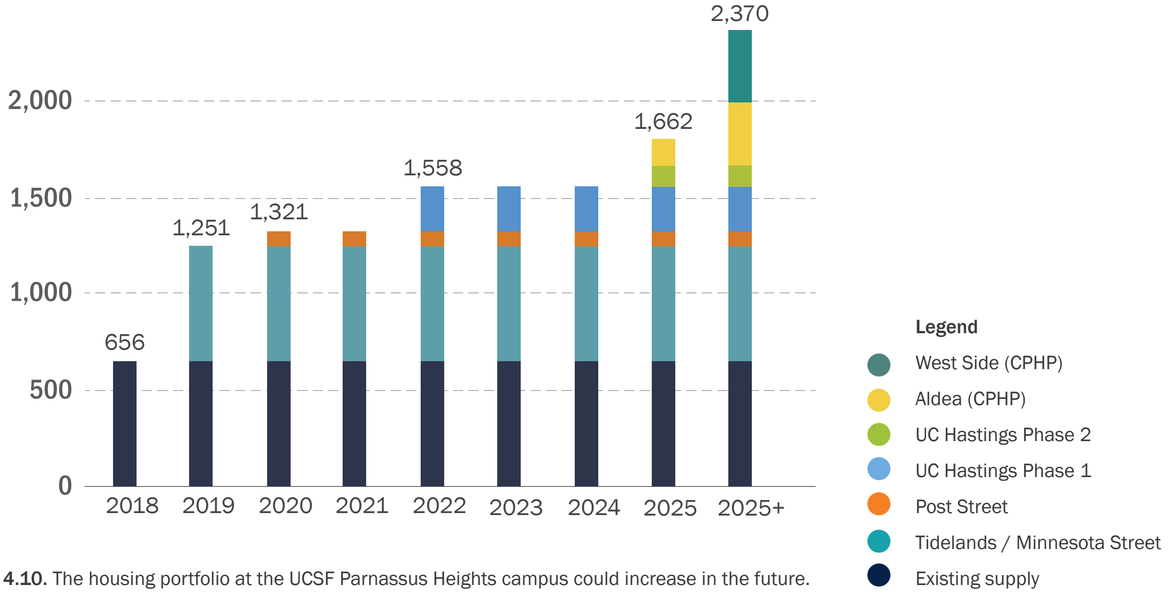
Table 4.9. estimates the potential to add housing to the Parnassus Heights sites shown in Figure 4.11. over the duration of the Plan. Future housing mix, tenure, quantity, design, and parking requirements will be determined on a project by project basis.

	West Side	Aldea
Average Unit Size	370-900 gsf	650-830 gsf
Number of Stories	Up to 10	Up to 8
Number of Units	426	504
Parking per Unit	0-1/unit	1/unit

4.8. Housing assumptions.

LOCATION	Units (2019)	Projected
Aldea	172	504
West Side	0	426
Avenue Housing	14-17	14-17
Total PH Campus Site	**189**	**947**
Total UCSF	**1251**	**2370**

4.9. Existing and projected housing stock.



4.10. The housing portfolio at the UCSF Parnassus Heights campus could increase in the future.

Housing in the West Side

The West Side is a potential location for a significant amount of housing, as well as supplementary social spaces and student support services. UCSF will explore student housing, as well as other related housing types including workforce housing.

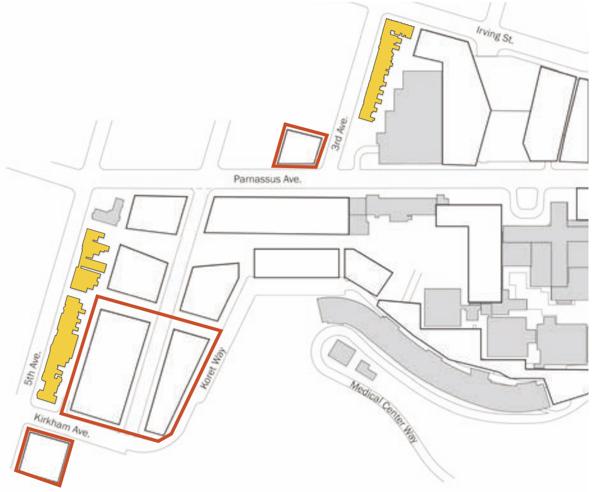
Aldea Community

Located within the Mount Sutro Open Space Reserve, Aldea is a landing place for students and trainees with families. Made up of a mix of 1960’s and 1990’s buildings, Aldea provides apartment housing on a two-year lease term including one-bedoorm, two-bedroom, and junior one-bedroom units.

UCSF will explore the incremental transition of Aldea’s existing housing stock to upgrade older buildings, make better use of the site, and meet long-term housing demand. Priority will be given to buildings with the most significant deferred maintenance requirements first. A more intensive housing program at Aldea is envisioned, continuing to prioritize families and adding up to 332 units in contemporary structures. While this population increase may require transportation improvements such as more frequent shuttles, the plan forecasts one parking space per unit due to the remote location and distance to public transit.

Child Care

UCSF will continue to offer child care services for its population. The CPHP seeks to improve availability of on-campus child care services. Future locations should be selected to offer access to outdoor space and proximity to shuttle services. Preliminary studies have explored the provision of new and expanded services in future locations at Aldea (50 Johnstone), or in the West Side (Proctor site).



4.11. Existing housing and opportunities at Parnassus Heights.

Legend

● Existing housing

○ Long term new opportunity

○ 1960s apartments at Aldea


Irving St.

5 A FLEXIBLE PLAN

A FLEXIBLE PLAN

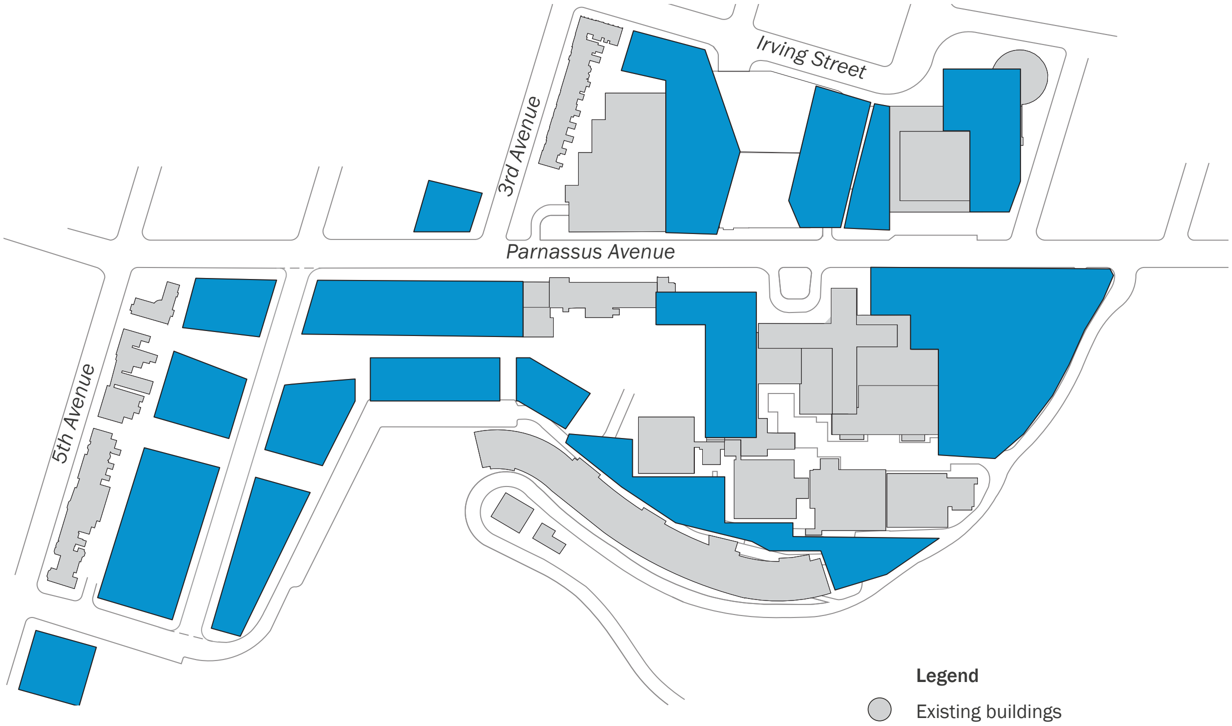
5.1 PLANNING FOR CHANGE

The following section establishes a long-term development framework for the revitalization of the Parnassus Heights physical environment.

Areas of potential change are illustrated in Figure 5.1. as "opportunity sites." Opportunity sites reflect infrastructure deficiencies and long-term structural viability as shown in Figure 5.2. The Plan assumes the eventual demolition and replacement of up to 26% of existing program space to create opportunity sites.

Planning for change enables long-term decision-making and generates opportunities for strategic growth, new public realm improvements, improved campus functionality, and the ability to decompress, decant, and renovate buildings efficiently. The estimated capacity of all combined opportunity sites (Figure 5.1) is responsive to program needs identified in Chapter 4. Opportunity sites accommodate space for:

- Growth for research and education facilities to maintain top-tier status.
- Growth assumptions for future patients and to accommodate the new hospital building for the Helen Diller Medical Center.
- New on-campus housing opportunities.
- Public realm improvements and amenities.



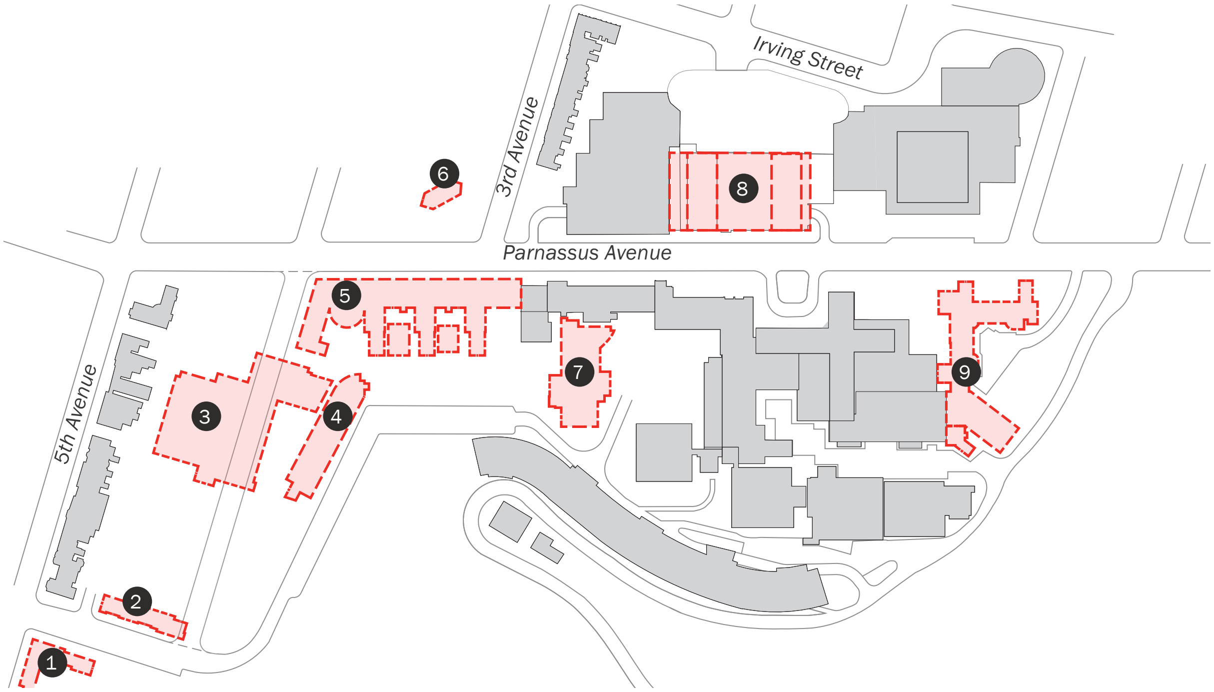
5.1. Opportunity sites for new development at Parnassus Heights.

5.2 OPPORTUNITY FRAMEWORK

Pages 86-89 illustrate a future campus vision reflective of opportunity sites, organizing principles, and identified space needs. This framework helps establish preferred building placement, scale, height, and campus circulation and introduces desired urban design considerations for a campus promenade, neighborhood integration, "Park to Peak" connections, and view corridors.

The framework also explores how to be responsive to new approaches to campus quality of life such as housing, child care, space for public-facing programs, as well as health, wellness, and patient family lodging.

1. **Proctor**
2. **Kirkham Child Care**
3. **Dental Clinics**
4. **Koret Vision Research**
5. **UC Hall**
6. **Lucia Child Care Center**
7. **School of Nursing building**
8. **Millberry Union East and West Towers**
9. **LPPI**



5.2 Over the plan period, identified buildings will require significant investments to address challenges.

Legend

🟥 Candidate for demolition

5.2 OPPORTUNITY FRAMEWORK

The campus vision encourages the consolidation of campus functions and clarifies uses while addressing space needs, creating opportunities for growth and convergence.

For illustrative purposes only: image does not represent architectural design.

1. Service Corridor
Develop back-of-house utility and material distribution systems for efficient campus operations (alignment to be determined).

2. Renovations
Support sustainable growth.

3. “Campus Heart”
Create the campus heart at Saunders Court and connect to the West Side of campus.

4. New opportunities
Support convergence between missions with new buildings and linkages.

5. New public spaces

6. Restored 4th Avenue

7. Housing
Explore long-term housing opportunities on the West Side.

8. Streetscape
Improve Parnassus Avenue.

9. Community
Integrate programs with the surrounding neighborhood.

10. Gateway
Locate programs that activate Irving Street.

11. Clinical East End
Consolidate clinical services in the East End and support a holistic patient/visitor arrival experience.

12. New hospital
Future location for the new hospital building at the Helen Diller Medical Center.

Legend

● Existing buildings

○ Opportunity sites
(Not representative of design)

5.2 OPPORTUNITY FRAMEWORK

The vision provides the opportunity for new amenities and "Park to Peak" connections via an activated, public ground plane. The expansion of public spaces shown below is estimated to be a three-fold increase over today's condition.

For illustrative purposes only: image does not represent architectural design.

1. Service Corridor

2. Pedestrian connections
Connect the campus to Mount Sutro via a pedestrian connection at the service corridor.

3. "Campus Heart"
Create the campus heart at Saunders Court and connect to the West Side of campus.

4. Promenade
Enhance campus public space with a large central promenade bridging the Campus Heart to the West Side.

5. Trail
Coordinate with planned trailheads to Mount Sutro.

6. Forest views
Maintain visual connection to Mount Sutro.

7. Forest
Continue stewardship of the Mount Sutro Open Space Reserve.

8. Open space visual connection

9. Community
Provide a home for community amenities.

10. Neighborhood
Keep Avenue houses in place to serve as a buffer between the campus and adjacent neighborhood.

11. Lodging
Explore lodging for patient families.

12. Millberry Terrace

13. Park-to-Peak
Enhance connections to Golden Gate Park.

14. Across Parnassus Avenue
Explore a bridge and a tunnel.

Legend

● Existing buildings

○ Opportunity sites
(Not representative of design)

● Public spaces

5.3 PLANNING FOR GROWTH

5.3 PLANNING FOR GROWTH

A History of Growth at Parnassus Heights

Parnassus Heights is the oldest and largest campus site belonging to UCSF. Since 1898, when the Affiliated Colleges, including medical, pharmacy, and dental schools, relocated to 13 acres of donated land on a site overlooking Golden Gate Park, the campus site has grown in size, population, and prominence. UCSF has evolved from its original campus at Parnassus Heights to its current multi-sited configuration, decentralizing its activities to various locations throughout San Francisco. However, Parnassus Heights still remains a significant site for research, clinical care, and education of the next generation of health sciences professionals.

In response to neighborhood concerns about continued expansion and development of the Parnassus Heights campus site, the Board of Regents of the University of California adopted a number of recommendations to limit growth in a resolution approved in 1976 (1976 Regents' Resolution). These included the designation of the Mount Sutro Open Space Reserve as permanent open space, establishment of campus boundaries, a commitment to maintain residential use of houses on the west side of the campus site, authorization to negotiate the sale of specific properties, an annual average daily population goal for the campus, and agreement to complete transportation studies. Perhaps most relevant to the Comprehensive Parnassus Height Plan, the Regents' Resolution also established a limit on the total gross square feet (gsf) of structured space within the campus boundary, commonly known as the space ceiling.

The 1976 Regents' Resolution specified that the total amount of structured space within the campus boundaries is not to exceed 3.55 million gsf, excluding space committed to residential use on Third, Fourth, Fifth, and Parnassus avenues and Kirkham and Irving streets. In the 1976 Long Range Development Plan (LRDP) and all subsequent LRDPs, UCSF has proposed to reduce its space ceiling overage by demolishing certain structures over time. While buildings have been demolished since the 1976 Regents' Resolution took effect, there have also been new buildings constructed at the campus site in order to meet the evolving programmatic needs of campus users.

The 1976 Regents' Resolution was updated in the 2014 Long Range Development Plan to exclude all residential space. This change, which specifically excluded the Aldea housing complex from the space ceiling calculation, was made with the support of the broader community with the intent of incentivizing UCSF to create more on-site campus housing without such development counting toward the space ceiling. The change also placed UCSF in a better position to improve its jobs-housing balance, lessen traffic impacts, and focus the monitoring of space on non-residential uses. Further, it enabled UCSF to better support the City's overall housing goals.

When the housing modification was adopted, the amount of space subject to the space ceiling in the 2014 LRDP totaled 3.71 million gsf, an overage of approximately 162,400 gsf or about 4.6 percent.

The 2014 LRDP also reaffirmed continuing commitments with respect to the Regents Resolution, including: (1) maintaining the designation of the Mount Sutro Open Space

Reserve as permanent open space; (2) continuing to respect the Parnassus Heights campus boundary established in 1976, and (3) continuing to adhere to an expansion restriction area within which UCSF will not acquire property or lease private residential property.

Changes Since the 1976 Regents Resolution was Instituted

Since the space ceiling was adopted as part of the Regents Resolution in 1976, significant changes have occurred in the City and the region. Both San Francisco and the Bay Area have seen substantial population growth. Between 1976 and 2017, San Francisco's residential population grew by about 28%, while the Bay Area's population increased by about 56%. Concurrent with this, the number of inpatients and outpatients treated at the Parnassus Heights campus has increased at a higher rate than the area's population growth, a result of UCSF's expanding role as a critical health care provider in San Francisco, the Bay Area, and across northern and central California. In San Francisco alone, UCSF's share of overall hospital discharges grew from 22 percent in 2001 to 34 percent in 2017. Between 2017 and 2019, the patient census at Parnassus Heights continued to climb, and steady growth is projected through 2034. This reflects UCSF's strategic importance as a regional patient referral center and an important provider of specialty care. The growth in the patient population at the Parnassus Heights campus is also reflective of the advancements in clinical care and treatment pioneered by UCSF. Since the mid-1970s, these advancements have included: fetal surgery to improve the long-term outcome of children with specific illnesses, brain mapping to safely remove tumors, targeted therapy to treat forms of multiple sclerosis, prenatal tests for the identification and treatment of inherited blood diseases, and the evolution of gender-based health care, among others. Importantly, the Parnassus Heights campus is also home to one of the oldest and most respected programs in transplantation in the world, pioneering new treatments for diseases of the kidney, liver, and pancreas.

Parnassus Heights Space Needs Today and in the Future

UCSF has grown significantly over the last two decades, not just in space and population, but also in terms of programmatic breadth and complexity. UCSF's growth has historically been driven by federal research funding, including grants from the National Institutes of Health and other governmental and non-governmental sources, and by inpatient and outpatient clinical volumes. In addition, philanthropy has been a significant driver of UCSF's capital construction.

A thorough assessment of the future forecast of these historic drivers of UCSF growth was conducted as part of the 2014 LRDP planning process. Based on information available at the time, future research funding was anticipated to grow at a modest and slower pace than UCSF had experienced in the previous two decades. Ongoing changes in the local, regional, state and national health care landscape were also considered, as were the impacts these changes were projected to have on future inpatient and outpatient volumes and, therefore, the need for, and location of, new or expanded UCSF clinical facilities. Further, the State of California's and the University of California's seismic requirements—which call for the replacement of certain facilities, including

5.3 PLANNING FOR GROWTH

hospitals—were factored into the 2014 LRDP's growth projections.

Over the last five years, however, UCSF's research enterprise has grown at higher than expected rates, due to factors including significant advances in existing programs and the development of new, leading edge programs. In addition, the Research Space Working Group, which reported to the Parnassus Master Plan Steering Committee, recommended that the research program portfolio for Parnassus Heights be expanded to allow for a critical mass of investigators in basic, clinical, and translational science, whereas previously, the focus at Parnassus has been on clinical and translational research. This expansion furthers the integrated, collaborative model of research that fosters vibrant, transformative new research and discovery. Aging wet bench laboratory spaces at Parnassus Heights have not kept up with advances in the sciences that they support, and a lack of "swing space" makes renovation of existing research space challenging.

On the clinical side, patient volumes have increased beyond 2014 projections. Today, UCSF's patient census is at a record high. Moffitt Hospital was built in 1955, and physicians and staff are working in facilities that are outdated, inflexible, undersized, and clinically obsolete. While the 2014 LRDP forecast that a new 308,000 gsf hospital would replace inpatient activity currently in Moffitt Hospital, updated and recent demand analysis directs that a larger hospital will be required to ensure that UCSF can continue to provide the scope and quality of specialized clinical care to the patients who will need it. The long-term success and viability of UCSF Health, which in 2018 generated more than 60 percent of UCSF's overall revenue, is critical to sustaining UCSF's public mission of providing top-quality care to patients and supporting research and education. This convergence of mission areas is highly prized by faculty and students at Parnassus Heights, and each component relies on robust participation from the others. In addition, providing quality facilities is critical to retaining and recruiting top-tier clinicians, staff, researchers, and students.

In an effort to carefully consider and weigh these issues, UCSF has been actively engaged in a planning effort to re-envision and revitalize the Parnassus Heights campus site to create a place that fosters collaboration among education, research, and patient care activities in ways that continue to promote excellence and advance human health. The planning process resulted in the development of the Comprehensive Parnassus Heights Plan (CPHP), which provides a long-term development framework for the revitalization of the Parnassus Heights physical environment, with the goal of also strengthening the economic and cultural vitality and livability of the entire neighborhood.

The CPHP process included the convening of four UCSF faculty/staff working groups to ensure that the plan could support the programmatic needs of our faculty and staff in the coming decades. Two of the working groups (CoLabs and Research Space) provided detailed quantities of space based on comprehensive review and analysis, while the Digital Hub Working Group projected headcounts that were subsequently translated into physical space needs, based on UCSF and peer benchmarking. The Education Space Working Group provided qualitative recommendations that, through consultation with working group members and the consultant team, were used to quantify the necessary space need.

The working group reports are summarized in Section 4.2, and the full reports can be found in Appendix B.

The initial sequence of projects as described in this plan includes a new hospital at the Helen Diller Medical Center, a new Research and Academic Building, development of an arrival/lobby space from the Irving Street entrance up to Parnassus Avenue, and densification of Aldea Family Housing. The exact space needs of the new hospital are currently the subject of detailed planning. The recommendations of the four faculty/staff working groups include 472,000 gsf of new space for research. The Irving Street Arrival is currently assumed to comprise approximately 25,000 gsf of net new space. Additional housing at Aldea would not count toward the space ceiling. The recommendations of the Education Space Working Group would be met in existing space or in replacement space following demolition of existing space.

Growth of the research and clinical environment would also require academic offices, clinician offices, and campus administrative space, as well as an increase in space for logistics in the form of a service corridor embedded beneath the east-west promenade (estimated at 43,500 gsf) and additional structured parking (approximately 66,000 gsf).

The total amount of existing space at the Parnassus Heights campus site in 2019 is 3,920,500 gsf, which includes 241,900 gsf of housing.

The total amount of future space needed to realize the total vision of the CPHP is approximately 5,965,300 gsf, which includes 915,300 gsf of housing.

In order to meet these critical space needs, UCSF proposes to modify the Regents Resolution to increase the space ceiling by 1.5 million gsf, from 3.55 million gsf to 5.05 million gsf.

5.4 PLANNING FOR SUSTAINABILITY

5.4 PLANNING FOR SUSTAINABILITY

UCSF is committed to achieving carbon neutrality by 2025. Defined as “net zero climate impacts from greenhouse gas (GHG) emissions” from new and existing buildings, it will be achieved both by minimizing these emissions and using measures to mitigate the remaining emissions. The *Sustainable Practices Policy* adopted statewide by the University of California establishes goals in nine areas of sustainable practices (see call-out box below).

UCSF prepared a GHG reduction strategy in conjunction with the 2014 LRDP and in alignment with the *Sustainable Practices Policy*, updated in 2017. It will help fulfill the GHG reduction requirements of the State of California Assembly Bill 32 (AB), which requires that California as a whole reduce GHG emissions to 1990 levels by 2020.

The University of California has strong sustainability guidelines for campus developments. All new building projects, other than acute care facilities, are to be designed to outperform the California Building Code energy-efficiency standards by at least 20%. No major project approved after June 30, 2019 can use on-site fossil fuel combustion for heating. New buildings will achieve a USGBC LEED “Silver” certification at a minimum and strive to achieve certification at the “Gold” level.

The re-envisioning of Parnassus Heights provides an opportunity to establish the campus as one of the UC system’s most sustainable sites. The university should consider “District Energy” options, low impact stormwater practices, and green building techniques at the campus scale. The CPHP explored resilience strategies in partnership with 100 Resilient Cities, as highlighted in section 1.4.

5.3. “Resilience Scan Workshop” led by 100 Resilient Cities, February 2019.

UC CARBON NEUTRALITY 2025 INITIATIVE

- **Wholesale electricity**
  Create a shared service center, which will manage the supply of wholesale electricity.
- **Energy efficiency and renewable energy**
  Continue the efforts on energy efficiency projects and expand them to small- to medium-scale renewable energy sources.
- **Natural gas and biogas procurement**
  Manage purchase of natural gas to mitigate risk and develop renewable natural gas (biogas).
- **Management of environmental attributes**
  Solicit funds to support allowances and carbon offsets in compliance with California's cap and trade program.

Sustainable Practices Policy areas:

- ► Green building
- ► Clean energy
- ► Transportation
- ► Climate protection
- ► Sustainable operations
- ► Waste reduction and recycling
- ► Environmentally preferable purchasing
- ► Sustainable food service
- ► Sustainable water systems

6 MOBILITY & CIRCULATION

MOBILITY & CIRCULATION

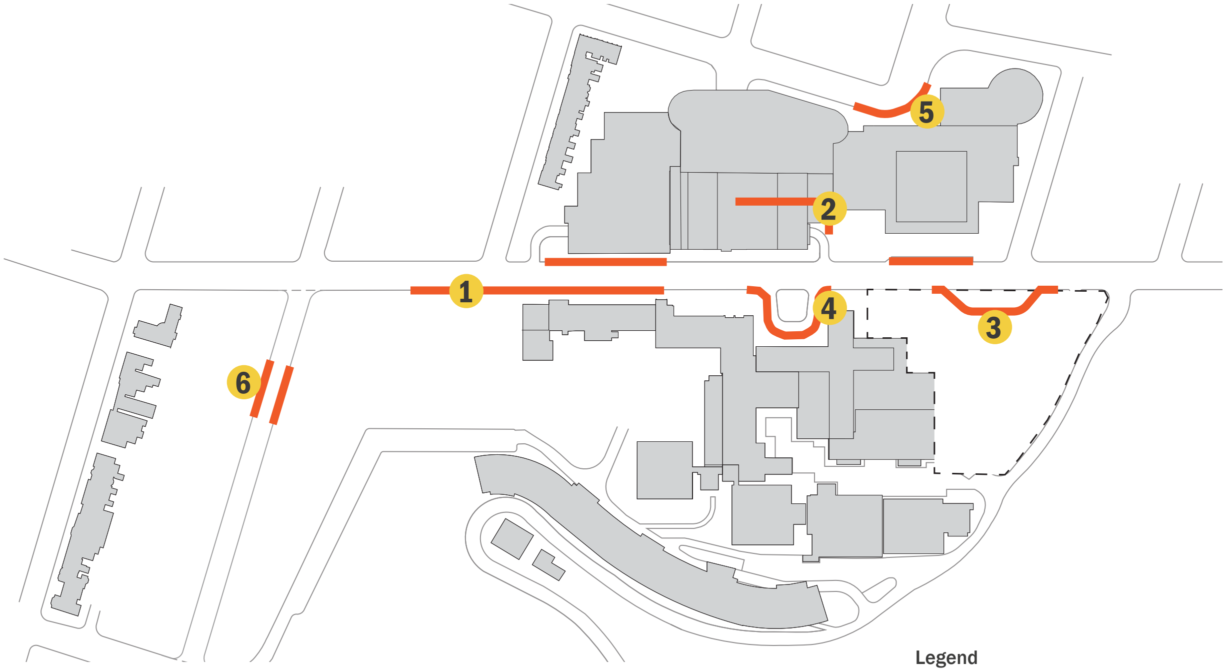
The vision for the Parnassus Heights campus acknowledges the shifting mobility landscape and proposes to further UCSF's goals to:

- Promote sustainable transportation behavior.
- Introduce campus circulation options to reduce impacts on the surrounding neighborhood.
- Improve the patient and visitor parking and arrival experience.
- Create safe on- and off-street passenger drop-off zones.
- Enhance Parnassus Avenue as a campus "main street."
- Optimize existing parking supply.
- Enhance overall campus functionality and efficiency.

6.1 PASSENGER LOADING

Projected growth in passenger pick-up and drop-off trips due to the use of ridehail services, such as Uber and Lyft, results in increased demand for on- and off-street curb space and the potential for more vehicle trips arriving and leaving campus. Similarly, the popularity of online purchases and delivery services results in more vehicle trips and increases demand for commercial loading. Strategies to adapt and mitigate resulting impacts to traffic flow and safety can be spatial (e.g., the design and location of new loading zones, improved crossings or traffic calming) and operational.

Figures 6.1 and 6.2 describe a preliminary concept for the expansion of new on- and off-street loading facilities at the Parnassus Heights campus as well



6.1. Suggested passenger loading facility distribution on campus as the size of passenger loading facilities and the expected number of peak hour loading instances that may occur at the same time.

Parnassus Avenue

Parnassus Avenue serves most of the campus' passenger loading demand. Moffitt Hospital's patient drop-off loop, a valet parking and drop-off area at Medical Building 1 (ACC), dedicated commercial loading spaces that can be used by Millberry Union vendors, the entrance and exit to the visitor parking garage, and several UCSF shuttle and Muni bus stops are also located on Parnassus Avenue. Since it is projected to remain the primary visitor passenger loading location for campus and outpatient services, the Parnassus Heights campus vision introduces new off-street loading facilities associated with the repurposing and renovation of Millberry Union garage. Any new on-street loading zones should be coordinated with implementation of the 2015 *Parnassus Avenue Streetscape Study*.

Irving Street

Irving Street is estimated to account for approximately 55% of arrivals to campus. It is an access point for employee and visitor parking garages and the location of the N-Judah Muni light rail line.

In coordination with the express elevator and lobby arrival improvements discussed in Chapter 7, UCSF should explore designating on-street passenger loading spaces on Irving Street to reduce pressure from Parnassus Avenue. These spaces should be designed to minimize the potential for Muni and existing loading dock conflicts.

West Side

As part of the long-term redevelopment of the West Side, UCSF should designate specific spaces for passenger loading activities to accommodate new development there, especially on the new 4th Avenue.

	Existing spaces	Proposed spaces	Weekday PM peak loading instance range
① Parnassus Avenue	13	13	5-7
② Proposed Millberry drop-off	0	5	1-3
③ Potential Future Hospital drop-off	0	8	6-10
④ Existing Moffitt Hospital drop-off	6	6	4-6
⑤ Irving Street	0	4	3-5
⑥ Proposed 4th Avenue (West Side)	0	4	2-4
Total	**19**	**40**	**21-35**

6.2. Suggested passenger loading distribution and location. Source: Fehr and Peers.

6.2 PARKING STRUCTURES

Operational Recommendations

- Partner with the San Francisco Municipal Transit Agency (SFMTA) to inventory, assess, and prioritize curb space usage on public streets to safely and efficiently meet multimodal demands.
- Apply mechanisms such as pricing or time limits to balance demand for on-street loading spaces.
- Consider using attendant enforcement of key loading areas, similar to airport curbside operations.
- Use geofencing to restrict ridehail providers to specific locations.
- Introduce measures to ensure vehicles move to the far end of loading areas and/or the back of queues (e.g., signage and/or traffic control).

6.2 PARKING STRUCTURES

Two multi-story parking garages provide the majority of the parking supply for the Parnassus Heights campus site, with a total of approximately 2,000 spaces. The ACC garage is used for staff parking and the Millberry garage is used mainly by patients and visitors.

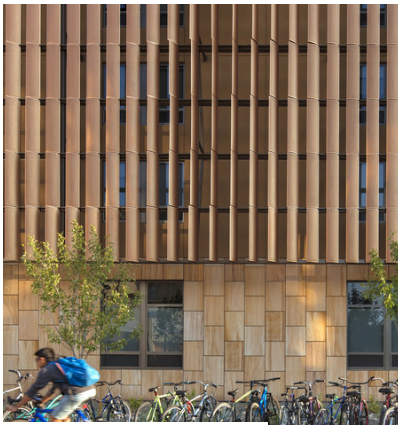
Updating these garages to improve functionality and address the campus' changing mobility needs will help improve the arrival experience for those who drive to campus. These improvements should be prioritized as near-term, early wins while planning for eventual replacement of the Millberry East and West towers and potential replacement of the garages would occur over the longer term.

Near Term Recommendations

- Improve garage access and ease of use with better lighting and signage for pedestrians to access internal elevators.
- Coordinate strategies for improved aesthetics and functionality with the Irving Street arrival project (Section 7.2) and planning for the new hospital building.

Graphic identity

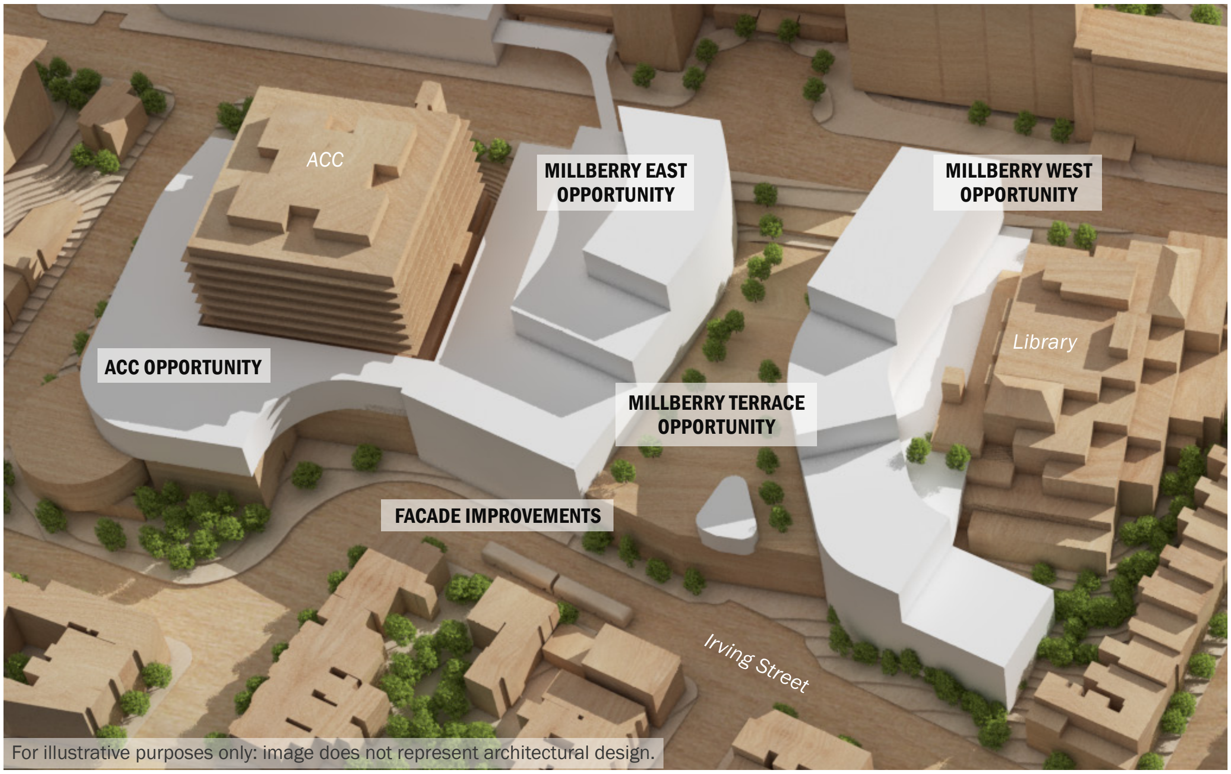
Clear wayfinding



Re-skinned facades

Long Term Opportunities

- Introduce a new campus open space on the roof of the Millberry garage (Millberry Terrace) and include new program as feasible.
- Explore repurposing space in the Millberry Union garage near the Parnassus Avenue entrance as an off-street passenger loading facility. Figures 6.4 and 6.5 show preliminary concepts to optimize space and connect this project with the Irving Street lobby, clinical services, and hospital reception areas. These concepts should be developed in coordination with planning for the new hospital building as well as opportunities for the replacement of the Millberry East and West Towers and the creation of the new Millberry Terrace.
- Validate the potential to add a new structure on top of the ACC garage roof as additional campus space opportunity while maintaining garage function.
- In order to streamline redevelopment opportunities and accommodate changes to parking access during construction, explore the use of nearby off-site parking resources.
- Consider increasing valet parking operations beyond the existing service to increase capacity.
- Improve the function and safety of Parnassus Avenue with dedicated off-street loading areas that connect into clinical programs.



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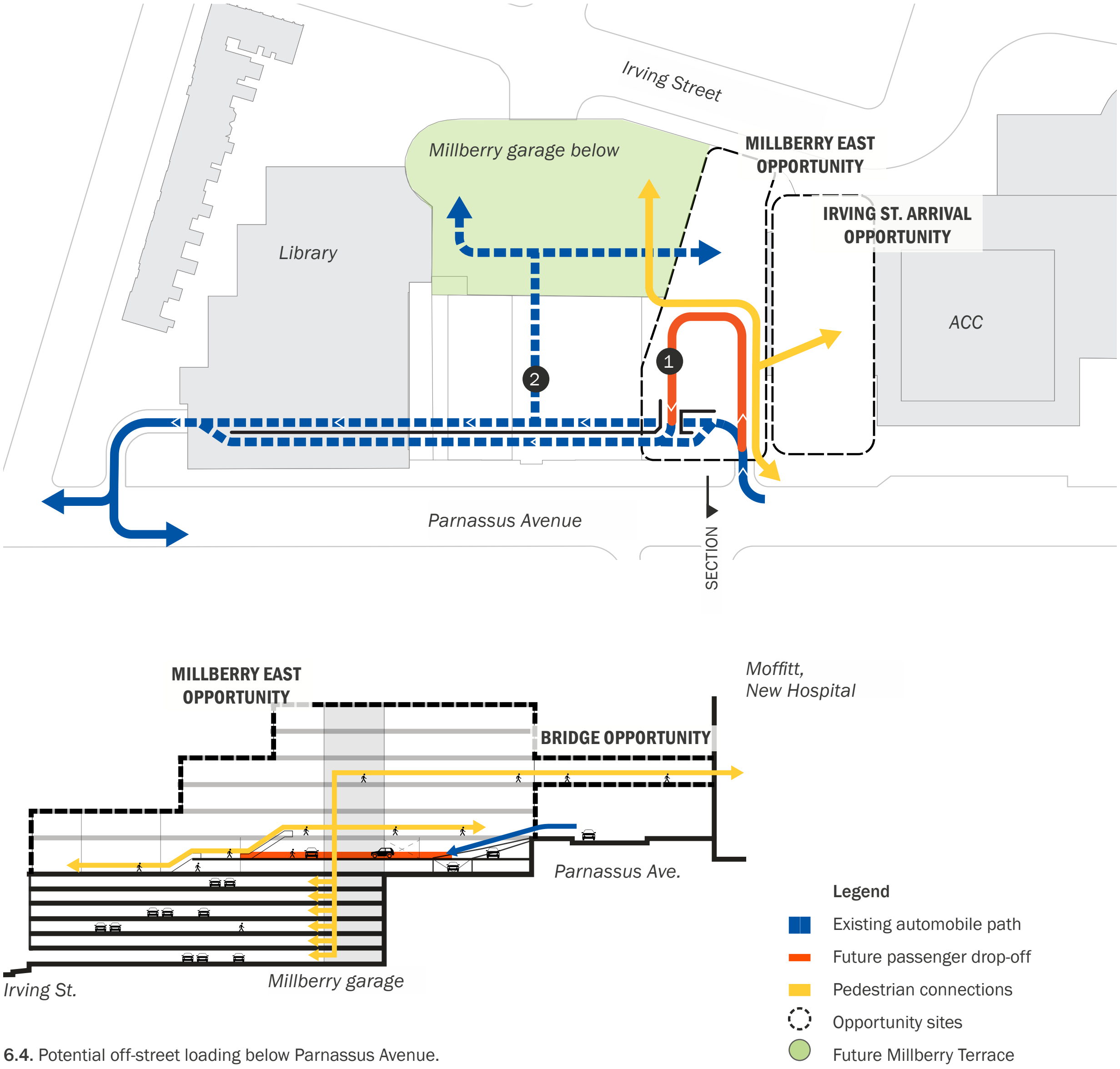
6.3. In the long term, the Millberry Garage roof could be repurposed as a “Millberry Terrace” and connect into the Irving Street arrival project. This should not preclude the development of Millberry East and West opportunity sites or the replacement of the Millberry Garage if required.

6.2 PARKING STRUCTURES

Millberry East tower opportunity site

① Design off-street passenger loading facility with valet service near Parnassus Avenue garage entrance, with connections to garage elevators, public programs, and potential grade-separated crossing of Parnassus Avenue.

② Maintain visitor parking access via ramp to lower levels of the garage.

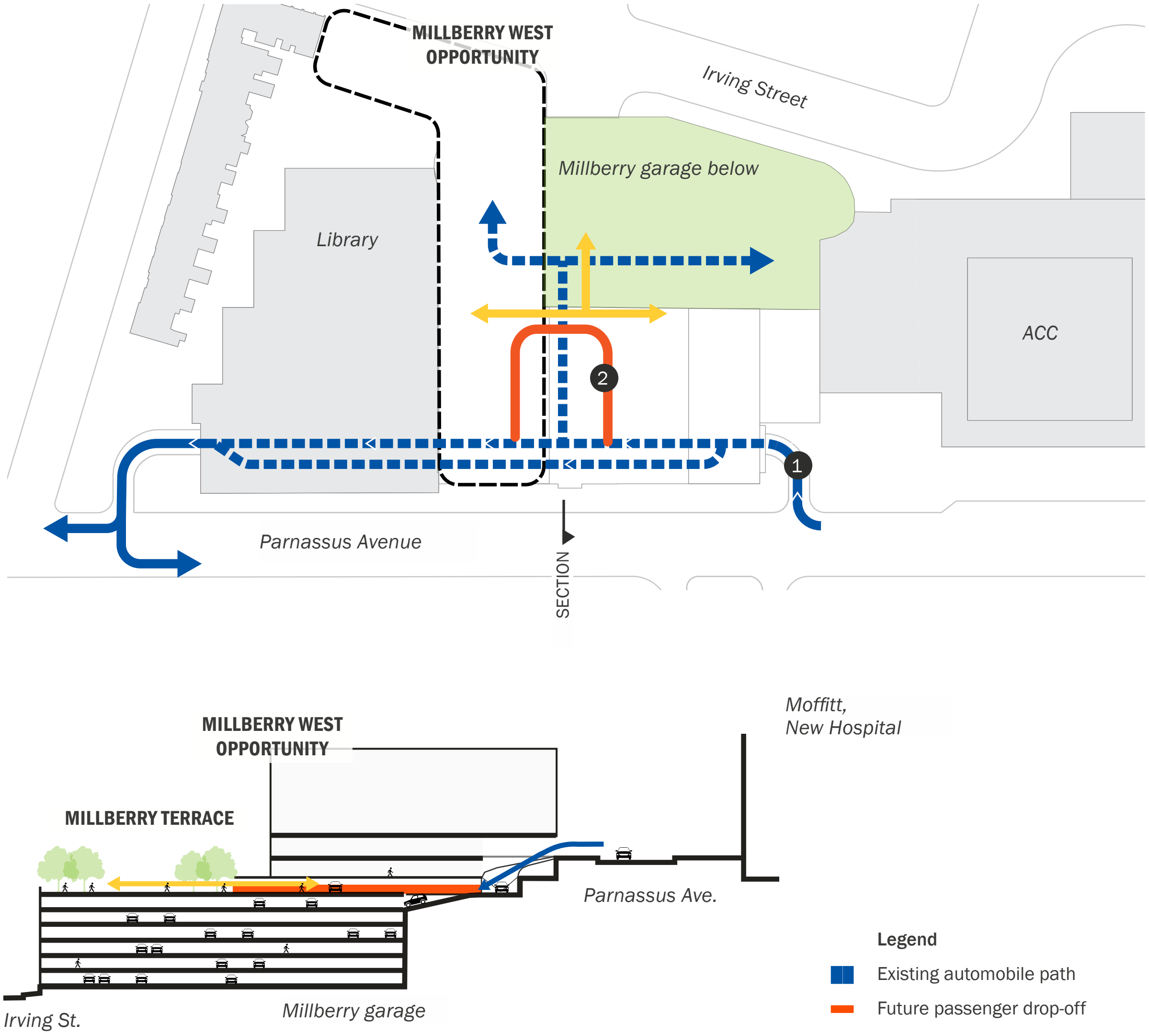


6.4. Potential off-street loading below Parnassus Avenue.

Millberry West tower opportunity site

① Repurpose existing access to loading area with valet services. Maintain garage access to lower floors in this location.

② Add additional drop-off that connects to Millberry Terrace and new program spaces in the Millberry West tower opportunity site.



6.5. Alternative/additional loading area connected to Millberry Terrace and to the Millberry West opportunity site.

6.3 PARNASSUS AVENUE CROSSING

6.3 PARNASSUS AVENUE CROSSING

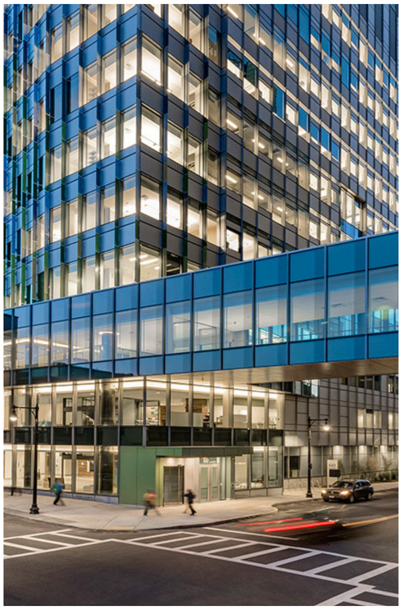
Improving connections between the north and south sides of the campus across Parnassus Avenue is an important priority for UCSF. As part of the 2015 *Parnassus Streetscape Study*, UCSF plans to install two crosswalk plazas and pedestrian bulb-outs to improve the pedestrian crossing experience on Parnassus Avenue itself.

A grade-separated crossing will have the following benefits:

- Link acute care and ambulatory care facilities to avoid unnecessary ambulance transport between the two sides.
- Improve safety and convenience for both physicians and patients avoiding traffic lights and on-street conflicts as well as inclement weather.
- Combine elements of circulation, utility, and service.
- Improve opportunities for patients and the public to quickly access amenities on the north and south sides of Parnassus Avenue.
- Support research and clinical collaborations for the UCSF workforce.
- Improve wayfinding for visitor arrivals, in the Millberry Parking Garage and via the N-Judah light rail to the hospital entry.
- Support resilience and sustainability goals by allowing materials and deliveries to be transmitted across Parnassus Avenue efficiently and safely.
- Reduce on-street traffic conflicts between patients and vehicles.

Vertical connection

Enclosed walkway



Linked facilities

Several conceptual locations for a bridge and tunnel crossing were explored during the CPHP process. Detailed designs and implementation strategies will be coordinated with planning for the new hospital, the replacement of the Millberry East tower, and the development of the Irving Street arrival.

UCSF should further develop the crossing concept to assess how to achieve the most benefit and finalize the proposed location, connection points, and primary user profile.

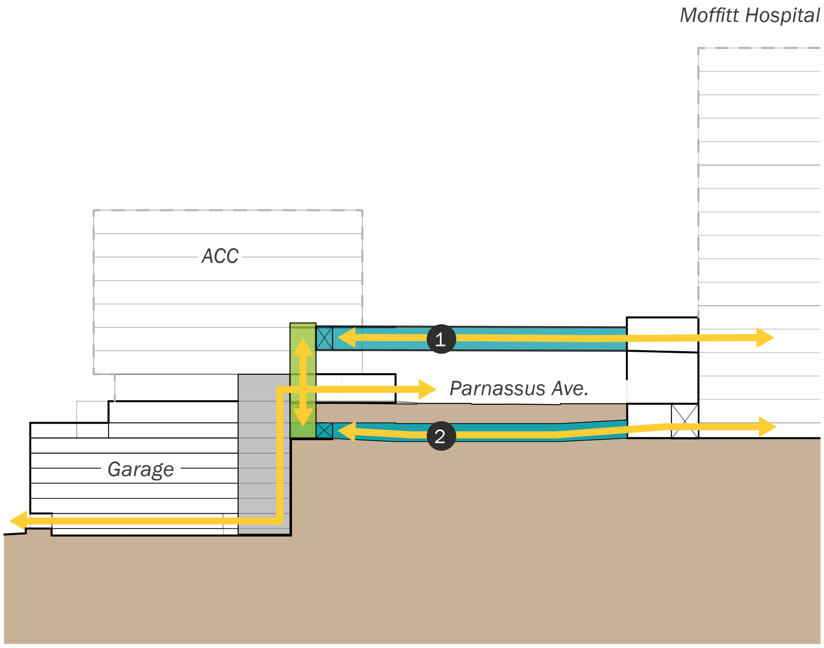
Bridge

- As a new landmark for the campus, a bridge would create a conditioned, convenient connection between both sides of Parnassus Avenue.
- A public bridge could allow UCSF personnel, patients, and visitors to travel from the parking areas into the main hospital reception.
- A more secure internal bridge could also be explored. This bridge might only be used by UCSF staff for transporting supplies and patients with limited public access.

Tunnel

Several tunnel options were explored for the CPHP process.

- A smaller bored tunnel could be used for improved utility connections (without personnel).
- A larger mined tunnel would allow for utilities and personnel connection between both sides of Parnassus Avenue.



6.6. Parnassus Avenue grade-separated crossing.

6.4 CAMPUS CIRCULATION

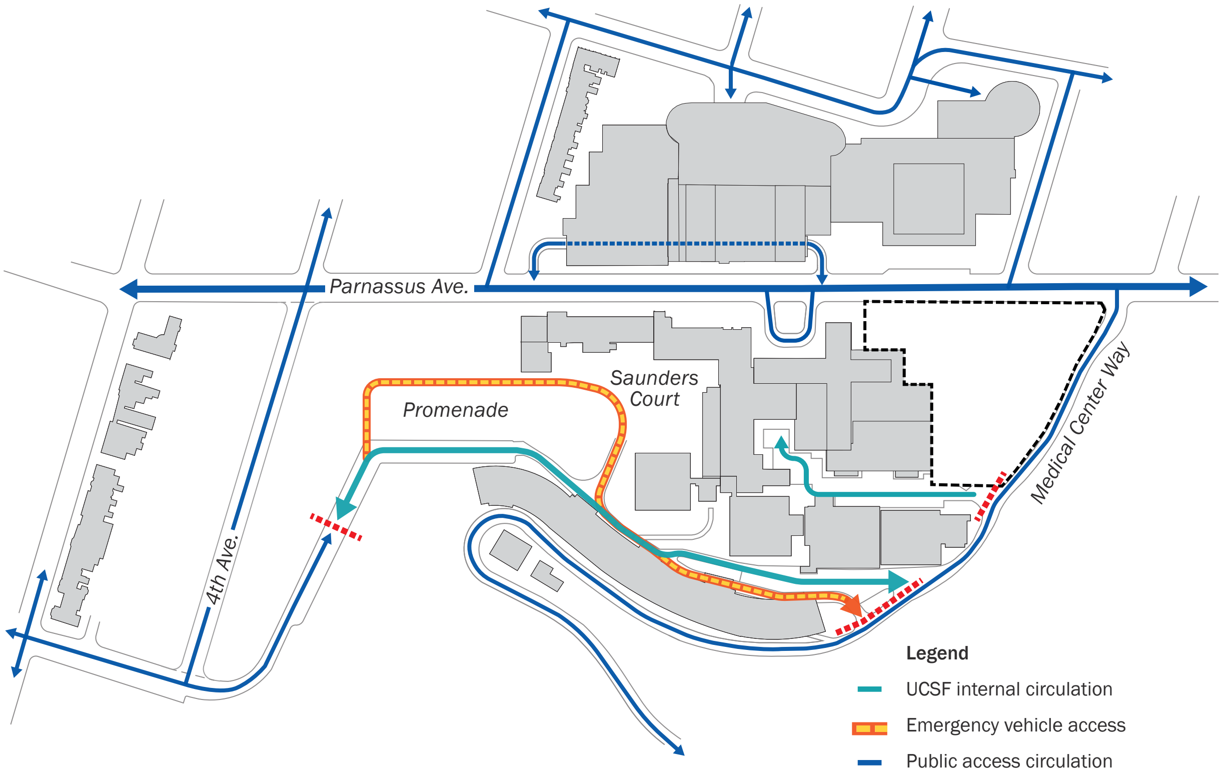
New internal circulation routes at Parnassus Heights are proposed for improved functionality and to support the redevelopment of the West Side. The extended 4th Avenue would provide public access to West Side opportunity sites, including new housing. The extension of Medical Center Way to Koret Way would be used for a range of internal including the new service corridor.

Medical Center Way Connection to Koret Way

With limited or no public access; this would be a controlled access route through campus. Users could include service vehicles, UCSF shuttles, and upon the completion of 4th Avenue, UCSF deliveries. Emergency access into Saunders Court and the new east-west promenade would be supported.

4th Avenue Extension

Designed as an extension of existing 4th Avenue, this new campus street would include on-street parking, sidewalks, and loading areas, and would be a campus street open to all vehicles. Future streetscape design should apply best practices in traffic calming and pedestrian facilities to minimize conflicts and to moderate vehicle speeds.



6.7. The street grid can extend into the West Side once the Dental Clinics building is removed.

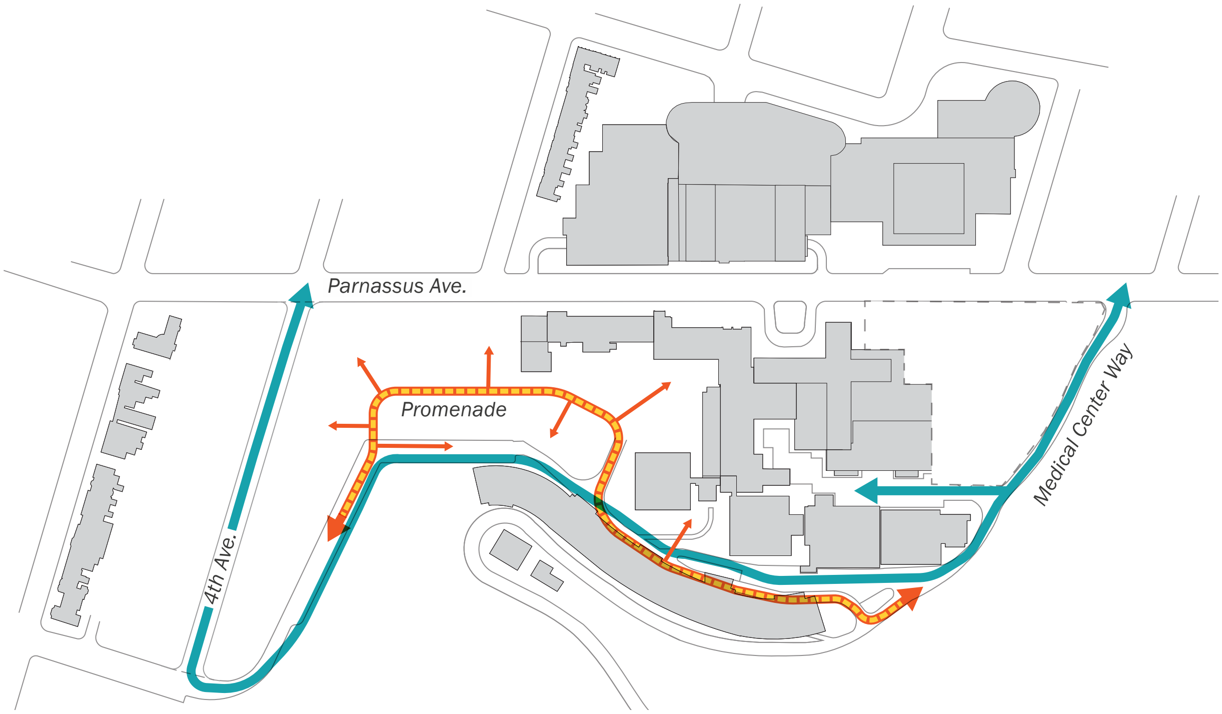
6.5 SERVICE CORRIDOR

The service corridor will bundle utility, service, delivery, and emergency access improvements along the southern edge of the campus. It is conceived as a multi-functional, modular connection with a fire access lane, vehicular delivery routes, and possible pedestrian connections at grade. These access points will create a more robust framework for future campus expansion along Koret Way, into the West Side and Research and Academic Commons.

On-going coordination among the many maintenance and renovation projects around the service corridor will permit UCSF to leverage these investments into a long-term, campus-wide improvement. The service corridor should be designed to be operational even if buildings that connect into it change or are replaced over time.

Goals

- Create a long-term design for the corridor to address connectivity, emergency vehicle access, maintenance access, delivery, logistics, and phasing for implementation.
- Manage risks of service interruptions. The service corridor provides for the creation of a utility loop to support overall stability of campus service as a whole.



Legend

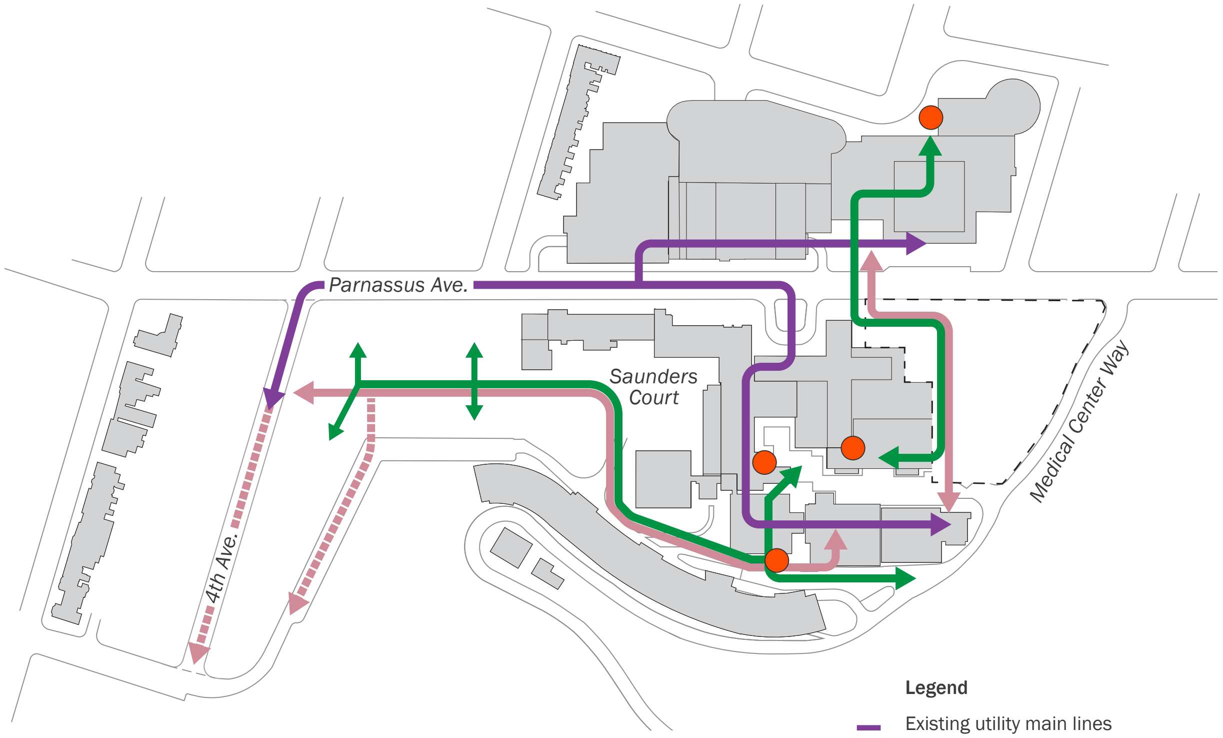
🟦	Internal UCSF vehicular route
🟧	Emergency access improvements

6.8. Emergency vehicle access to the back of the campus is greatly improved and a new through-route is imagined for UCSF service vehicles.

6.5 SERVICE CORRIDOR

Service Corridor Project Integration

- Coordinate with the new hospital planning team to link utility and delivery options.
- Coordinate with existing loading docks to connect facilities to utilities and service areas.
- Coordinate with campus fire, water, steam, and electrical upgrades and new construction and any new campus plant upgrades.
- Coordinate with the Health Science towers code compliance improvements and renovations and upgrades as they occur. Consider integrating campus service functions into lower floors near docks.
- Consolidate Hooper Pad mechanical, electrical and plumbing system replacement projects, remove abandoned equipment, and strengthen pad, and build new retaining walls to accommodate corridor.
- Coordinate with the replacement and expansion of environmental and hazardous waste facilities.



6.9. A new service corridor can connect existing loading docks for a future decentralized, flexible delivery strategy and connects existing utility lines for a redundant, resilient system.

6.10. Today, mechanical equipment at Hooper Pad is vulnerable to weather and unsightly. This location is an opportunity for a landscaped future service corridor.

7 IMPLEMENTATION

IMPLEMENTATION

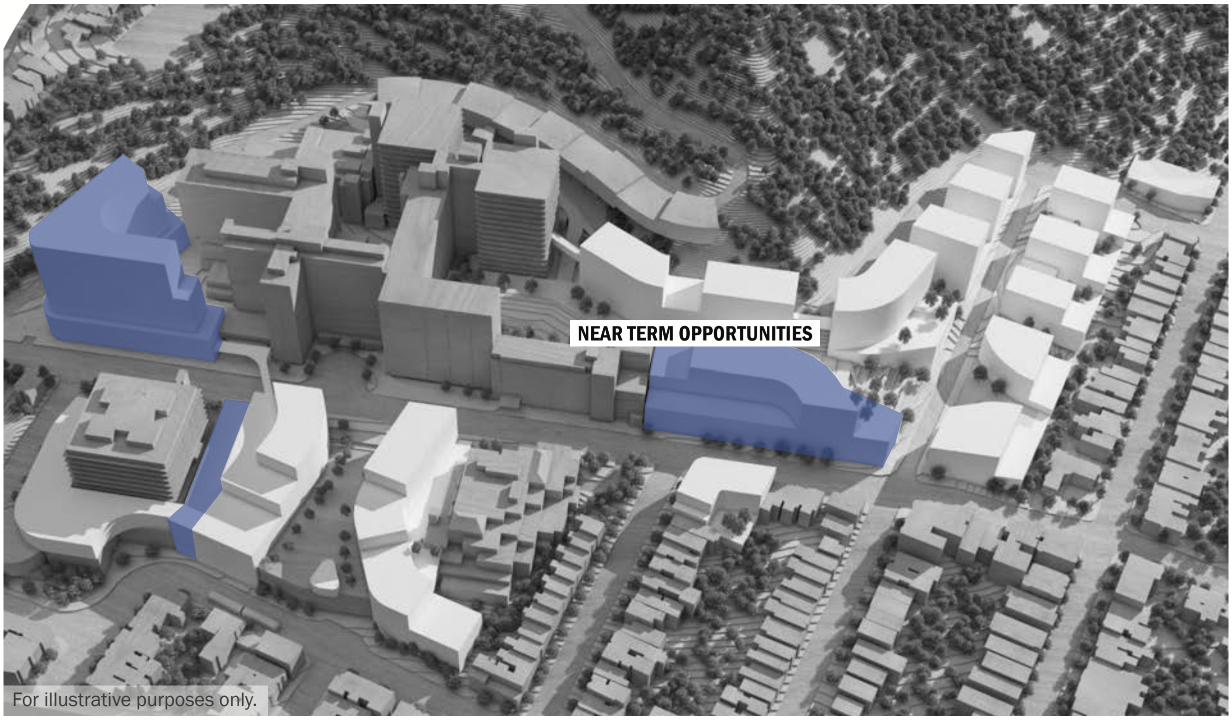
7.1 IMPLEMENTATION OVERVIEW

The plan is the culmination of work over the past year and a half to define a bold new vision for the reinvigoration of the Parnassus Heights campus and has been informed by the Community Ideas and other feedback provided by the Community Working Group described on page 24. The transformation of Parnassus Heights will take place over the next several decades.

The next step in advancing the CPHP is the development of an environmental impact report (EIR) to analyze the plan's potential environmental impacts. Following preparation of the EIR, an amendment to UCSF's Long Range Development Plan (LRDP) to modify the space ceiling to support the recommendations of the CPHP, will be brought to the University of California Board of Regents for consideration.

To ensure that voices of stakeholders are heard, UCSF has convened an Advisory Committee for the Future of UCSF Parnassus Heights, comprising community leaders, neighbors, merchants, and representatives of city agencies and non-profits, to advise on potential neighborhood issues and to inform the LRDP Amendment.

This chapter summarizes the initial sequence for proposed near term implementation projects and describes longer term explorations.



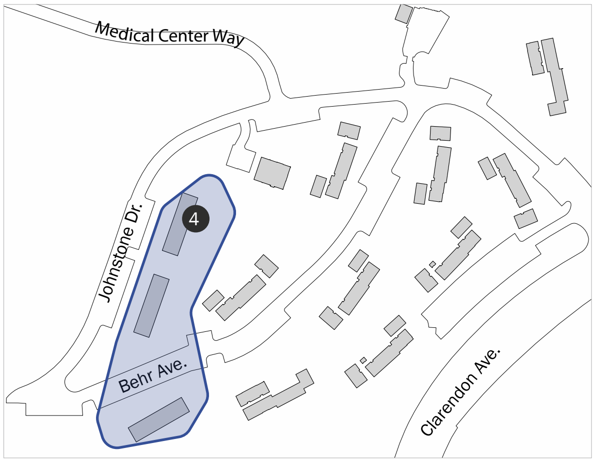
7.1. Initial project sequence and proposed locations at Parnassus Heights.

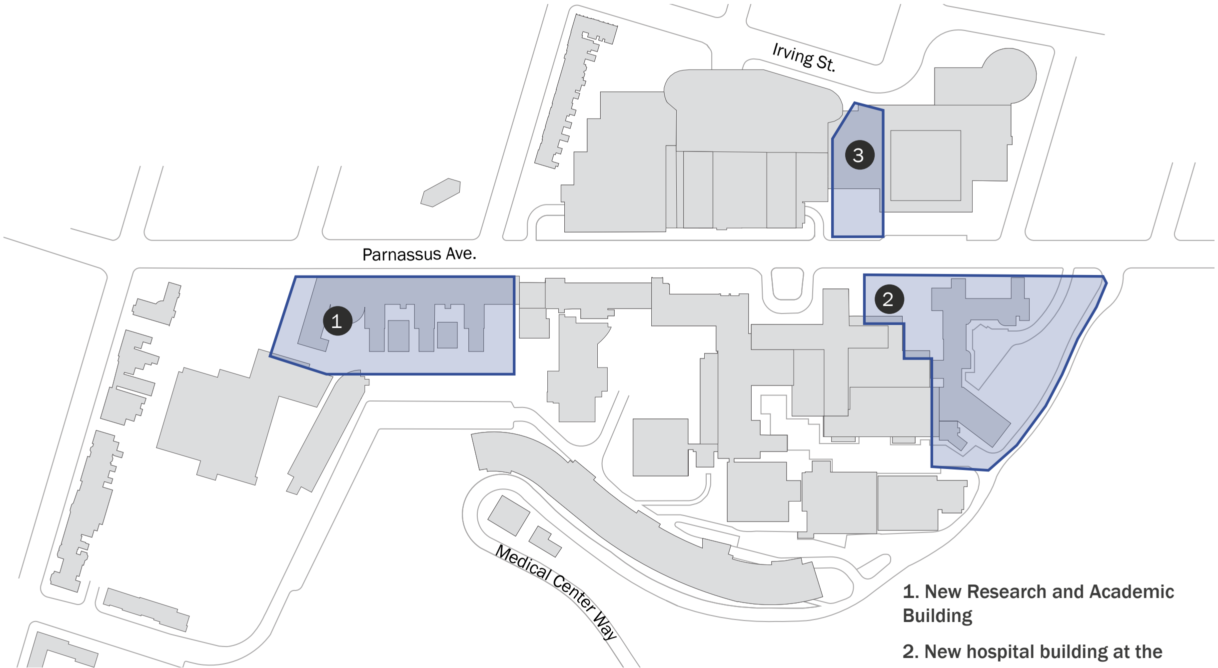
7.2 INITIAL SEQUENCE (2020-2030)

The CPHP initial project sequence is identified on Figure 7.2. Initial sequence project criteria are:

- Have fewer “dependencies”
- Support research and academic community
- Generate enthusiasm and momentum
- Improve patient and visitor experience
- Provide the “empty chair” to enable renovation of existing space
- Improve access to the campus
- Lower escalation costs of construction
- Maintain long term flexibility, while moving towards the overall Vision
- Benefit a diverse set of stakeholders

Site descriptions, project recommendations, proximity, and dependencies for these projects are described on the following pages.





1. New Research and Academic Building

2. New hospital building at the Helen Diller Medical Center

3. Irving Street arrival project

4. Aldea housing increase

7.2. Initial project sequence and proposed locations at Parnassus Heights.

7.2 INITIAL SEQUENCE

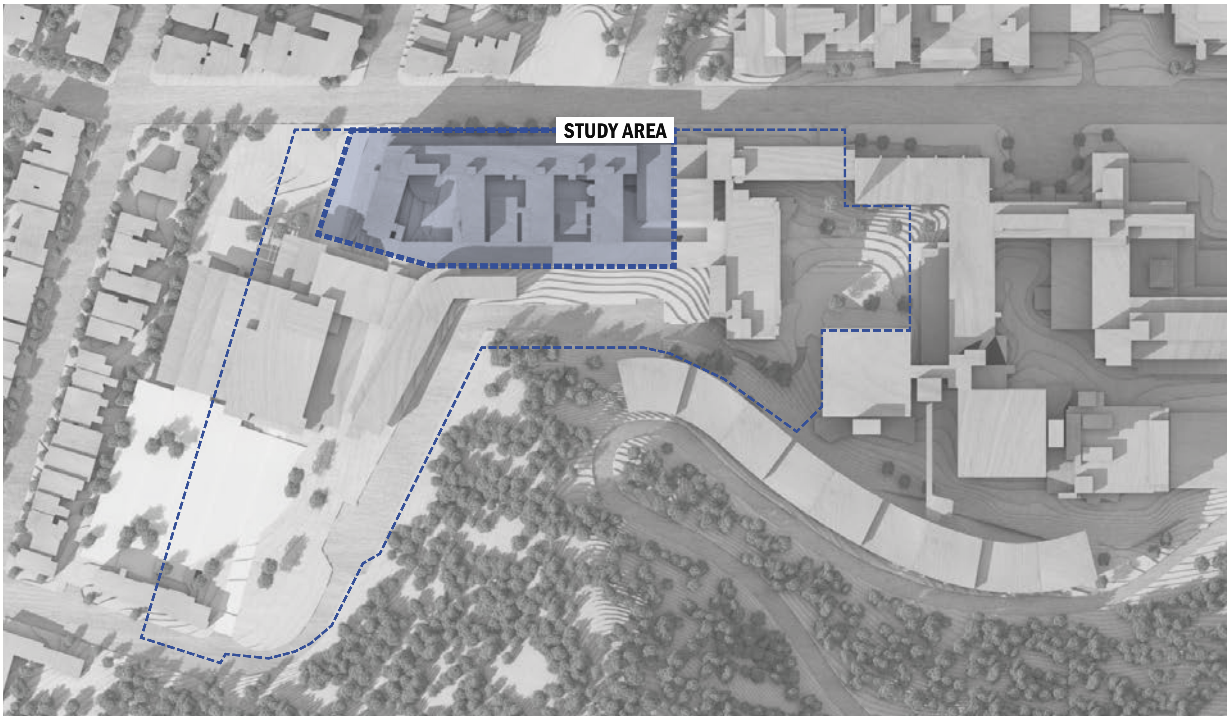
① New Research and Academic Building

In contrast to the 2014 LRDP proposal to renovate UC Hall in a phased approach for housing, the CPHP proposes to demolish UC Hall and replace it with a new Research and Academic Building to provide new research space and an "empty chair" to help decompress, decant, and renovate critical existing structures and substandard spaces on campus.

In order to inform the redevelopment of the UC Hall site and its environs, a District Plan covering the area shown in Figure 7.3 will be prepared. In addition, a companion study will advance a conceptual program and massing for the new building and explore urban design treatments and site adjacencies that include the proposed east-west promenade, the design of 4th Avenue, and service corridor connections as well as construction logistics and costing.

Recommendations

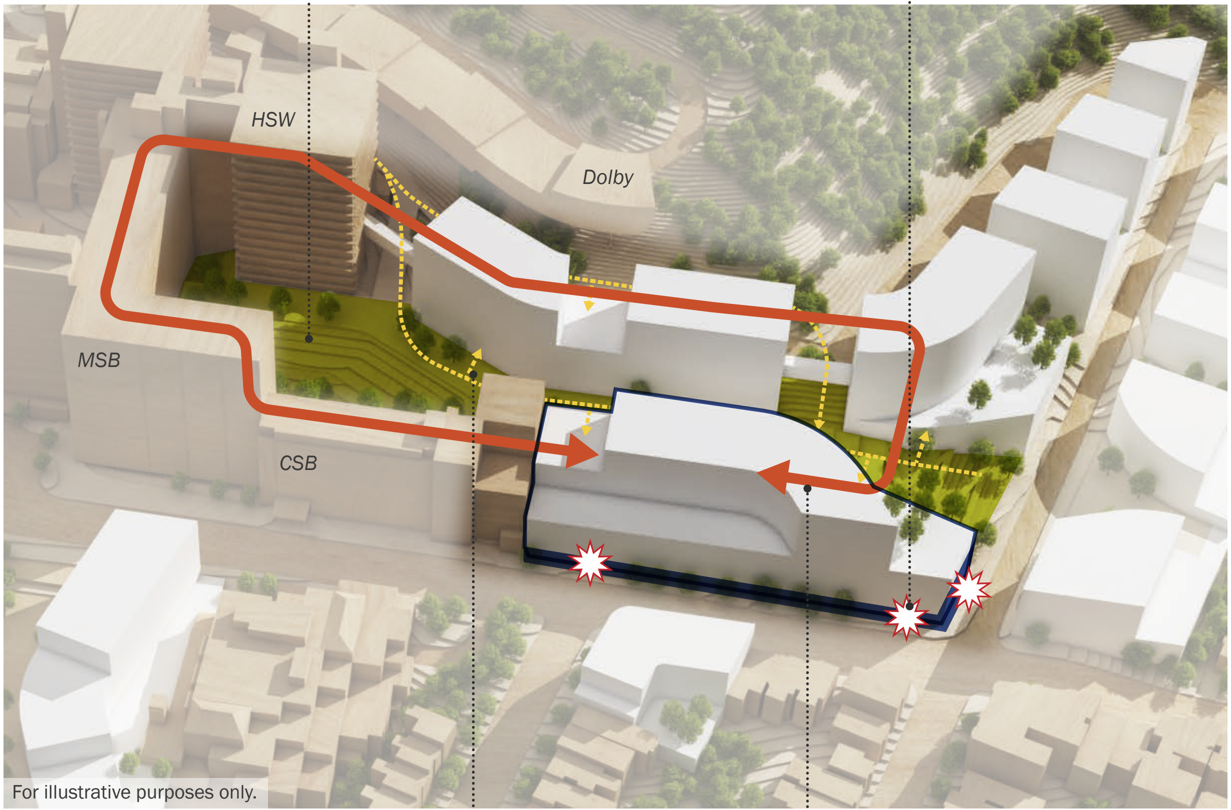
- Validate site constraints and opportunities for a new Research and Academic Building in support of long term objectives.
- Develop a phased approach for new campus elements including a plan for the extension of 4th Avenue and the campus promenade.
- Develop an integrated (UCSF Health/Campus) plan for construction logistics and apply techniques that will mitigate impacts on the campus and its neighbors.



7.3. Study area for a new Research and Academic Building.

Campus Promenade
Introduce a strong east-west pedestrian connection within the campus.

Campus entries
Improve street presence with new entries at 3rd and 4th Avenues.



For illustrative purposes only.

7.4. New Research and Academic Building site context.

Long term opportunities
Extend service corridor connections and facilitate development.

Connections
Propose secure, internal connections through existing and new buildings.

Legend

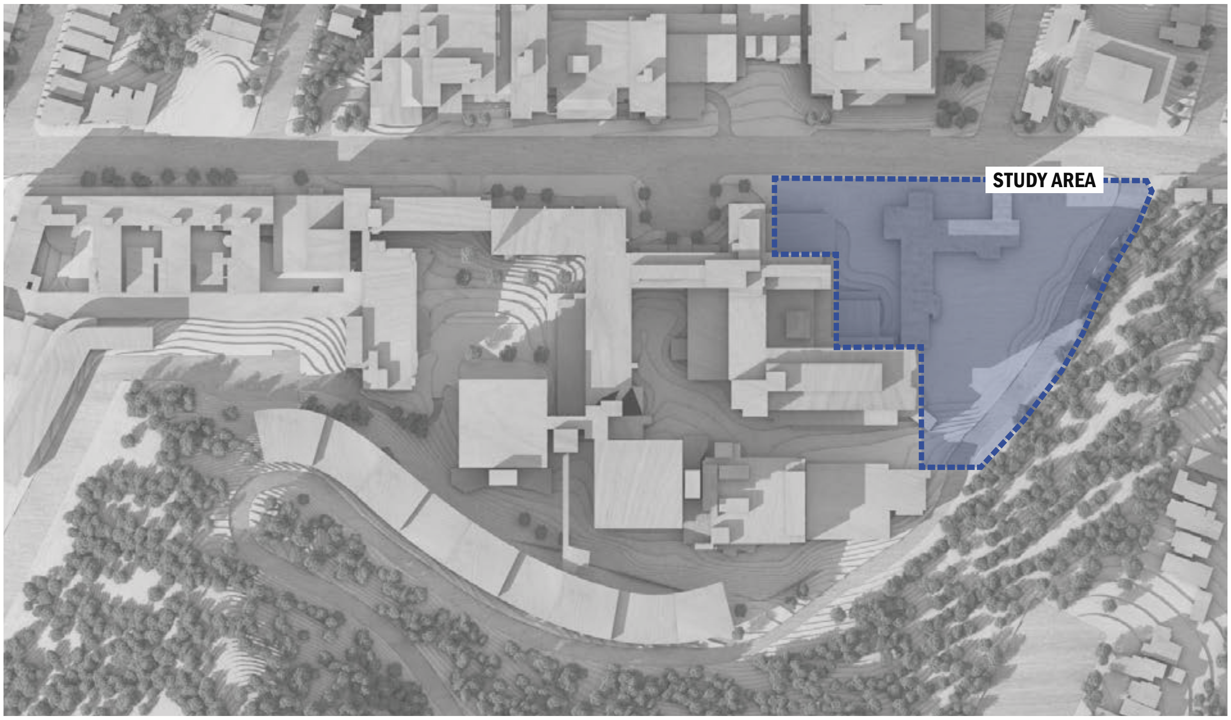
▬ Primary building site boundary
● Campus promenade
← UCSF internal concourse
○ Existing buildings
○ Opportunity sites
- - - Potential utility connection
✸ Main entry points

② New hospital building at the Helen Diller Medical Center

To meet state requirements, Moffitt Hospital must be decommissioned for inpatient care or seismically retrofitted by 2030. A new hospital building on the LPPI site is planned to address seismic, capacity, and patient care issues. UCSF Health has begun to plan for the new hospital building and design will begin in 2020. Demolition of the LPPI building and subsequent construction of the project is planned to begin in 2022. The first patient is expected at the hospital in 2029.

Recommendations

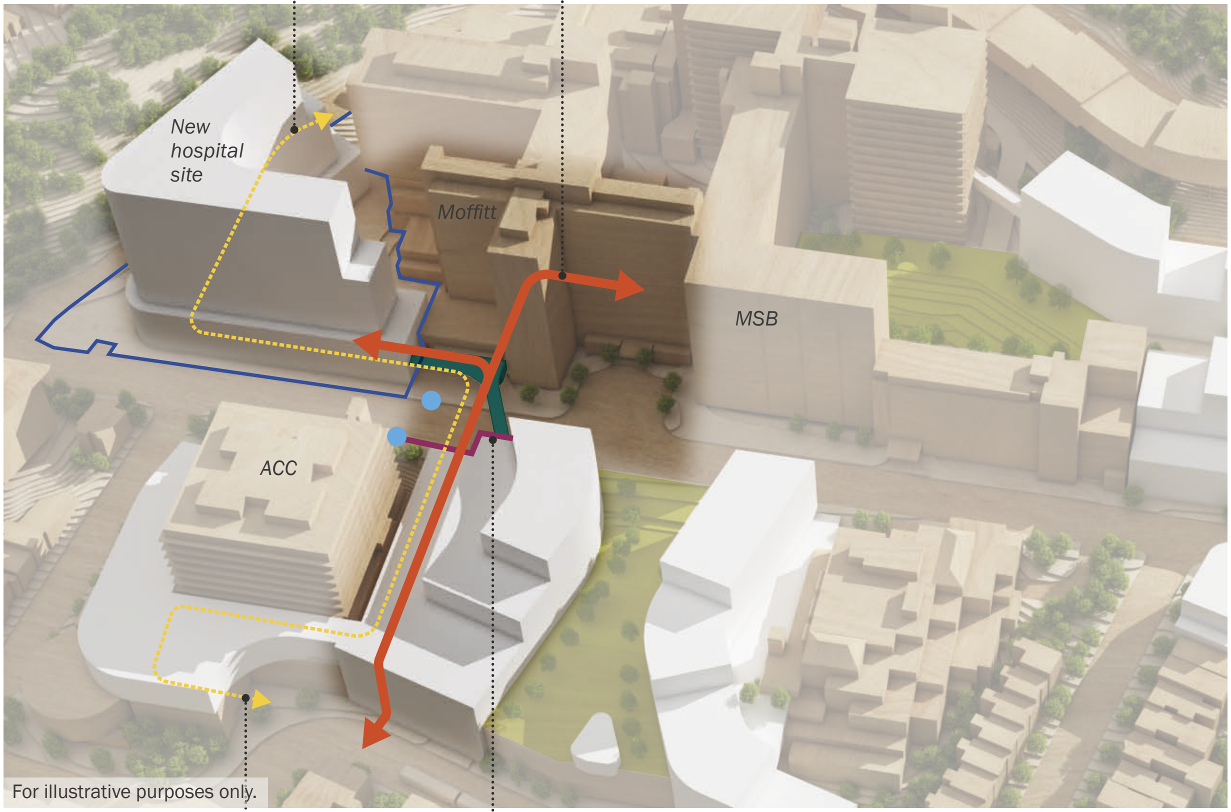
- Coordinate hospital planning with the CPHP vision for a Clinical East End District.
- Enhance outcomes for academic, research, and clinical programs with dedicated spaces for convergence.
- Coordinate with other campus development to extend the patient and visitor experience beyond the four walls of the hospital.
- Enhance clinical connections and patient safety by exploring a potential bridge and tunnel across Parnassus Avenue.
- Coordinate infrastructure upgrades and future circulation objectives for the service corridor to support UCSF's sustainability goals.



7.5. Study area for the new hospital building.

Service and utilities
Connect utility services and logistics in coordination with the service corridor.

Clinical East End
Enhance circulation between existing clinical buildings and provide clear access from Irving Street.



For illustrative purposes only.

7.6. New hospital building site context.

Loading
Connect to existing loading docks and back-of-house areas.

“Unified Lobby”
Clarify campus experience with a consolidated welcome area with potential passenger drop-off.

Legend

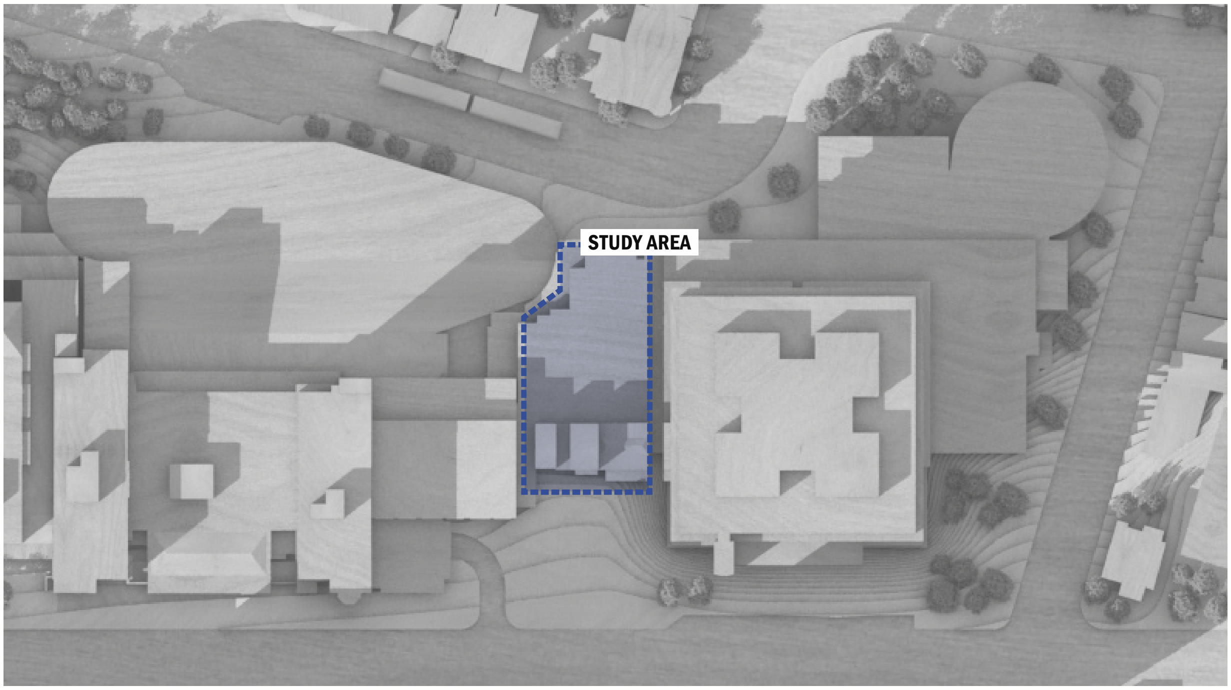
- ▬ Primary project boundary
- ● Bridge opportunity
- ● UCSF shuttle/Muni stop
- ▬ Off-street drop-off opportunity
- ← Public and patient circulation
- ▪▪▪ Potential utility/service connection

③ Irving Street Arrival

Reconfigure the Irving Street arrival experience to improve campus image, wayfinding, and user experience. As part of this project, explore the addition of express vertical transport to improve the journey between Irving Street and Parnassus Avenue by establishing an intuitive link that connects riders from the N-Judah directly up to Parnassus Avenue, and to in- and outpatient facilities and other campus destinations located there. The project should include a framework for an interior “unified lobby” built upon the top floors of the ACC Garage (see Figure 7.8). This space should provide reception, clear access to waiting areas, wellness offerings, convenience retail, and other amenities.

Recommendations

- Create a multi-story welcome experience.
- Build express vertical circulation (elevator/escalator) from Irving Street to Parnassus Avenue.
- Maintain flexibility for a future bridge and/or tunnel across Parnassus Avenue.
- Dedicate space to support shuttle, passenger pick-up and drop-off, and transit connections.
- Include arrival features that allow for orientation areas and check-in processing desks or kiosks to direct patients, staff, and visitors to their destinations on campus.
- Maintain future development flexibility at the Millberry Union opportunity site.
- Coordinate with new hospital planning for proper and secure pedestrian flow.

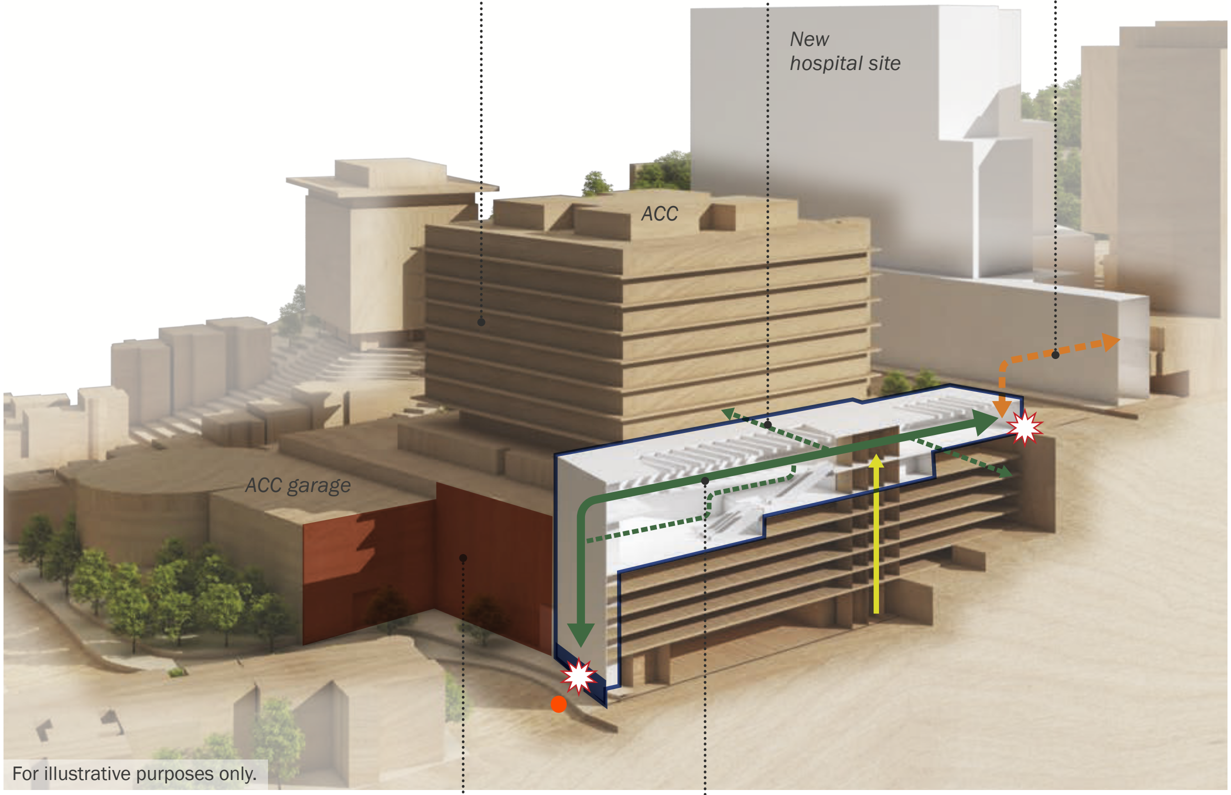


7.7. Study area for the Irving Street arrival project.

Irving Street address
Provide new street presence to the ACC and its outpatient programs.

“Unified Lobby”
Develop a central welcome space, connecting a multi-level atrium above the existing garage to Parnassus Avenue.

Bridge
Opportunity to connect across Parnassus Avenue.



7.8. Irving Street arrival project context.

Facade improvements
Enhance the existing garage facades with re-skinning strategies.

Express circulation
Improve vertical connection with express elevator to/from Parnassus Avenue.

Legend

- ▬ Primary project boundary
- ← New express circulation
- ■ ■ New secondary circulation
- ▬ Existing elevator core
- ■ ■ Potential bridge connection
- ✺ Main entry points
- ● Muni stop

7.2 INITIAL SEQUENCE

④ Increase Aldea Housing

In order to meet the need for additional housing at the Parnassus Heights campus as well as address significant deferred maintenance issues with existing housing at Aldea, redevelop older apartments at Aldea with taller buildings and a denser layout as feasible.

Recommendations

- Replace older housing stock with new larger buildings.
- Prioritize buildings with significant deferred maintenance needs.
- Develop a comprehensive urban design strategy that can be implemented over time.
- Analyze and manage traffic impacts.
- Prioritize family housing, and consider future child care at 50 Johnstone.

1960s housing stock
Explore replacing existing building pads incrementally with higher density housing, starting with the oldest ones.

For illustrative purposes only.

7.9. Aldea Housing within the Mount Sutro environment.

7.3 PREPARING FOR THE FUTURE

As a constrained, developed site, all future projects at Parnassus Heights are subject to internal dependencies, validation, financial feasibility analysis, and discussions on campus priorities. UCSF will proactively plan for change and coordinate these dependencies among the long term opportunities identified in Figure 7.10.

An example of how dependencies may influence future phasing for West Side redevelopment is as follows:

1. Conduct School of Dentistry needs assessment and programming;
2. Construct replacement program space for the Dental Clinics;
3. Decant Dental Clinics;
4. Restore 4th Avenue on campus;
5. Design and construct first projects;
6. Prepare to decant remaining parcels;
7. Incrementally complete the West Side.

7.10. The Framework Plan: projects will be phased as additional information is developed.


heights
UCSF

8 CAMPUS DESIGN

CAMPUS DESIGN PRINCIPLES

This chapter is focused on providing a design framework for Parnassus Heights while recognizing the need to allow for future flexibility and creativity in design approaches.

8.1 CAMPUS DESIGN PRINCIPLES

The Parnassus Heights campus physical form has evolved in form, style, use, and context since its founding and is a product of changing needs and incremental growth and alteration. This Campus Design chapter is focused on providing a more intentional design framework for Parnassus Heights while recognizing the need to allow for future flexibility and creativity in design approaches.

A *Physical Design Framework*[1] that applies to all of UCSF's campus sites was approved in 2010 and amended in 2016 and serves as the foundation for UCSF to plan and design future projects according to a clear and consistent set of high-level planning and design principles, guidelines and strategies. Included within the *Physical Design Framework* are Universal Planning and Design Principles:

- Respond to **context** while reinforcing identity;
- Welcome the **community**;
- Ensure **connectivity** to and within the campus;
- Improve campus **cohesiveness**;
- Create spaces to promote **collegiality**;
- Lead through **conservation** and sustainability.

These principles are the basis for the more focused and site-specific Parnassus Heights Campus Design Principles found in this chapter.

UCSF will engage in a process to develop Parnassus Heights Design Guidelines as part of the next phase of implementation, and these guidelines will provide guidance on design features such as setbacks, massing/building form, height, materiality, color, street furniture, signage, lighting, public art, and landscape features.

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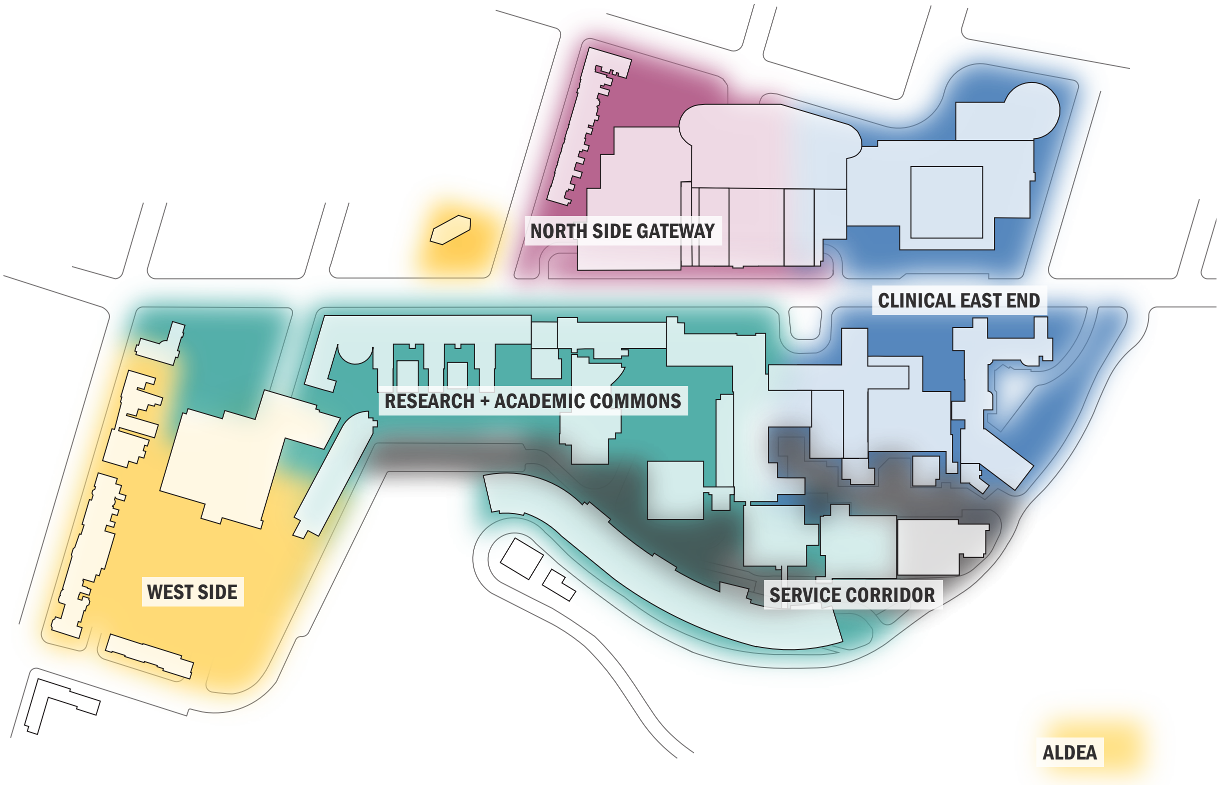
1. https://campusplanning.ucsf.edu/sites/campusplanning.ucsf.edu/files/reports/UCSF_Physical_Design_Framework%20w%20Amendmt1.pdf

8.1 CAMPUS DESIGN PRINCIPLES

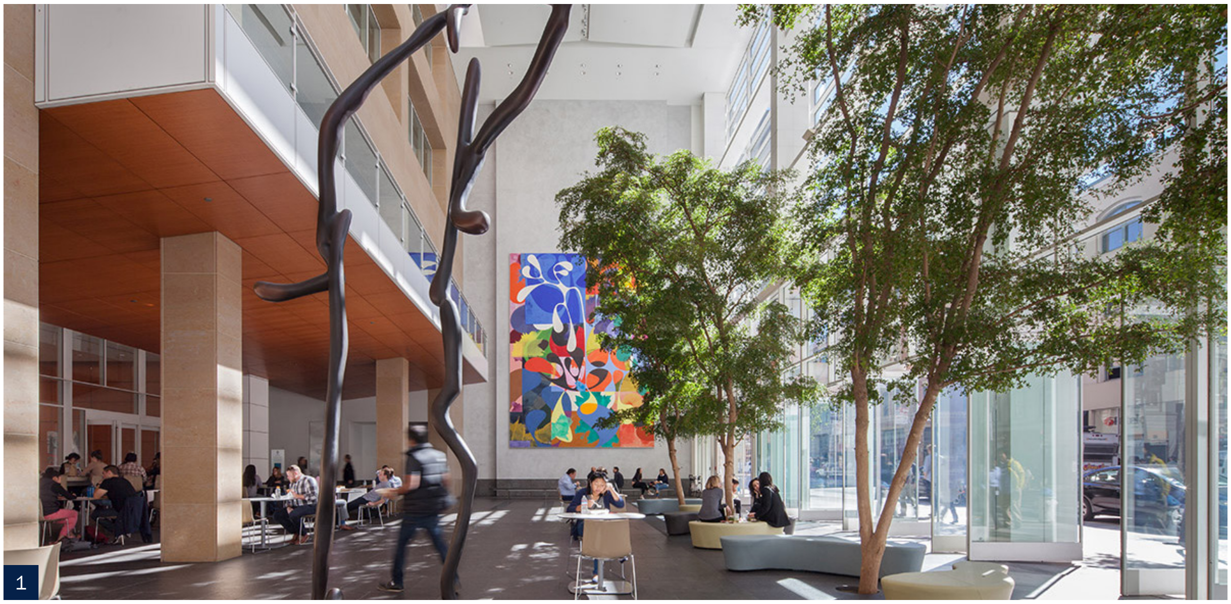
L1 Foster intuitive wayfinding and support the creation of consolidated campus districts through the co-location of mutually supportive programs.

Create distinctive districts as defined in the Parnassus Heights Campus Vision:

- In the **Clinical East End**, consolidate uses focused on outpatient and inpatient treatment, and prioritize patient-oriented uses with direct access from a public street and visitor parking areas.
- In the **Research and Academic Commons**, create a location for the convergence between research programs and the academic and clinical missions, oriented around a central "campus heart."
- In the **North Side Gateway**, create amenity spaces available to patients, visitors, employees, learners, and the public, and leverage future hospital ancillary functions. Create a prominent arrival sequence from Irving Street, maximizing visual connectivity to destinations.
- In the **West Side**, diversify and intensify land uses to support the UCSF mission with housing and child care.
- Create a **service corridor** to improve campus function, efficiency, and internal circulation.



8.1. Parnassus Heights campus districts.



1. Large atrium spaces celebrate arrival and provide visual connectivity.

2. A prominent front door can be a memorable experience.

8.1 CAMPUS DESIGN PRINCIPLES

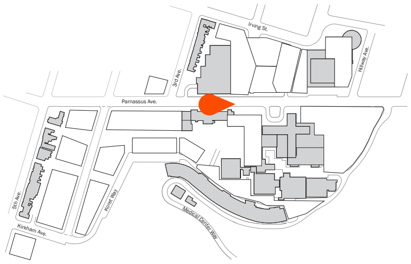
Prominent destination

Improved pedestrian connections

Clear sense of entry

For illustrative purposes only: image does not represent architectural design.

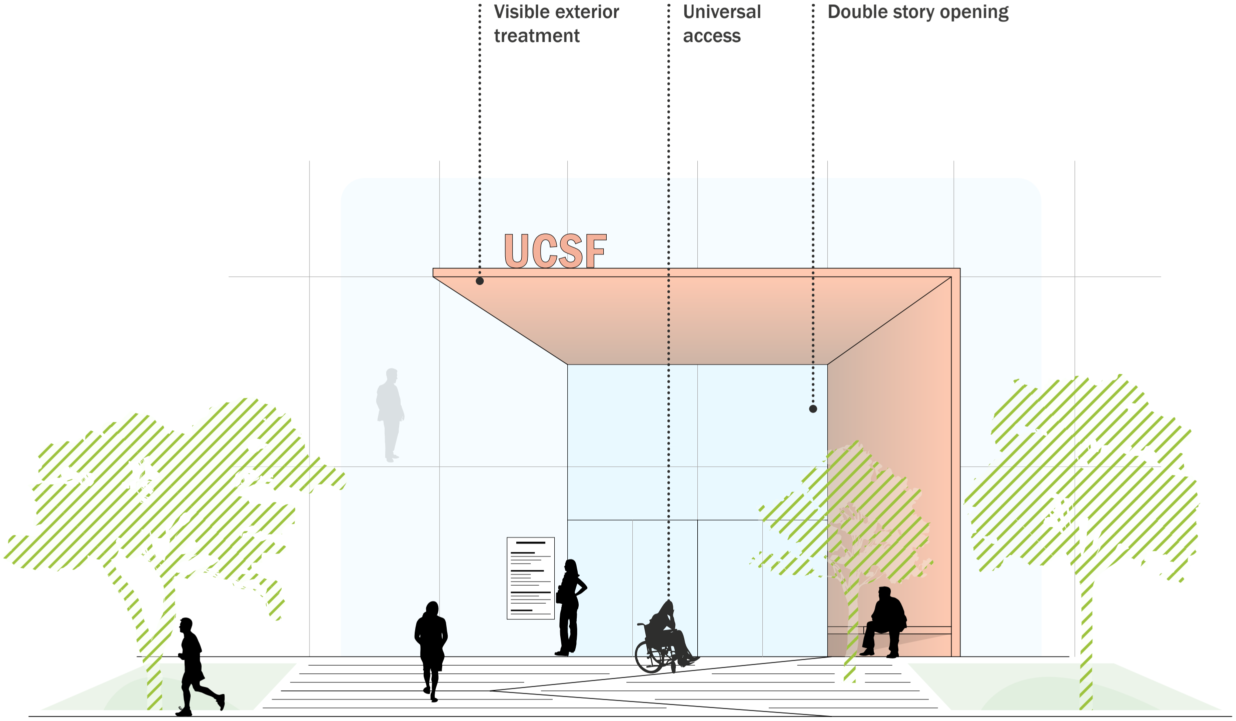
8.2. The consolidation of campus districts helps bridge between mutually supportive programs and clarifies the campus experience for all users.



L2 Clarify the visitor arrival experience by differentiating primary "public" campus entrances from secondary entrances for everyday users, employees, and learners.

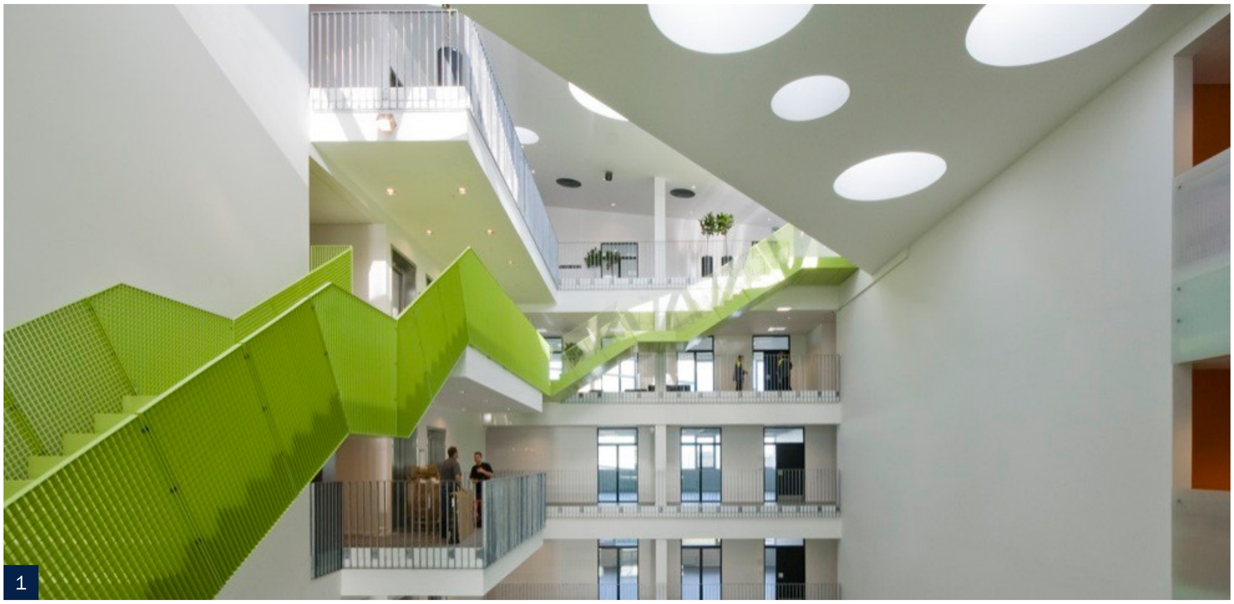
Buildings should include architectural features that differentiate between primary "public " campus entries and secondary building entrances. Primary building entrances should:

- Be clearly visible from a distance to form a positive first impression, as well as contribute to the life and activity of the street and sidewalk;
- Include treatments such as visible multi-story openings, exterior canopies, enhanced lighting, or distinct architectural treatments;
- Include generous areas for reception or waiting when necessary;
- Include dignified and welcoming universal access that does not segregate users based on physical abilities;
- Discourage primary building entrances that only incorporate major flights of stairs without ramps;
- For all entrances, apply bold colors or material accents on interior walls that can be visible to the outdoors;
- Accentuate interior activities, reinforce legibility of entries and exits and animate adjacent exterior spaces at night with bold color.



8.3. Distinctive canopies contribute to wayfinding. Universal access measures propose a similar arrival experience to all users.

8.1 CAMPUS DESIGN PRINCIPLES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1. Colors on circulation elements clarify paths for various groups.

2. Distinctive canopies make entrances enhance wayfinding.

Clear sense of entry

Visible indoor activity

Secondary entrance is more subdued

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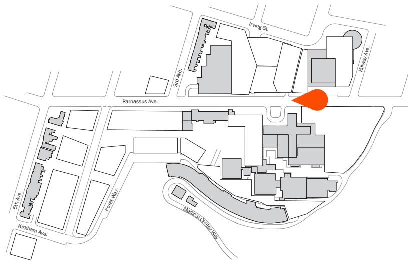
8.4. The visitor arrival experience can be clarified through thoughtful design and articulation of main entrances and secondary entrances for everyday users.

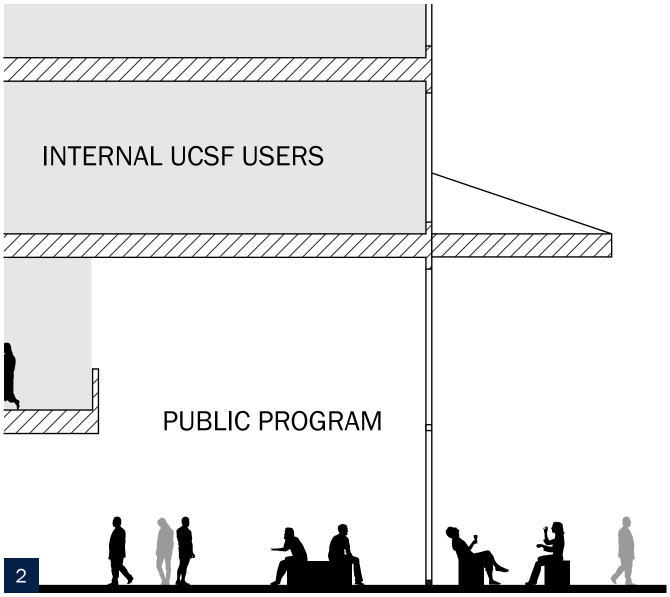


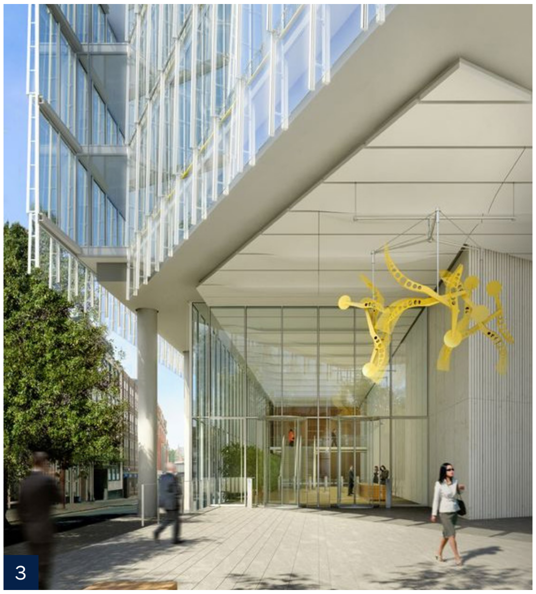
8.1 CAMPUS DESIGN PRINCIPLES

L3 Provide ground floors with a welcoming public presence.

- Introduce facade designs that make the academic and research activities apparent to the public by prioritizing permeability at ground levels.
- Place active programs, such as lounges, retail and food venues, informal discussion areas, learning spaces, university assembly halls, seminar rooms, and exhibit spaces on ground floors.
- Introduce multi-level atria and entry spaces to impart a sense of generosity, maximize daylighting, allow for views to the exterior, and promote indoor-outdoor connections (both visual and physical). In atrium spaces use clerestory windows and skylights to supplement daylight.
- Highly reflective or tinted glass and blank exterior walls at the ground plane should be avoided.
- Deeply recessed ground floors or low height colonnades should be avoided.
- Avoid the creation of inaccessible narrow alcoves and spaces that lack a clear public purpose.

8.5. Opportunity for public zones at Parnassus Heights.





1. Welcoming lobby

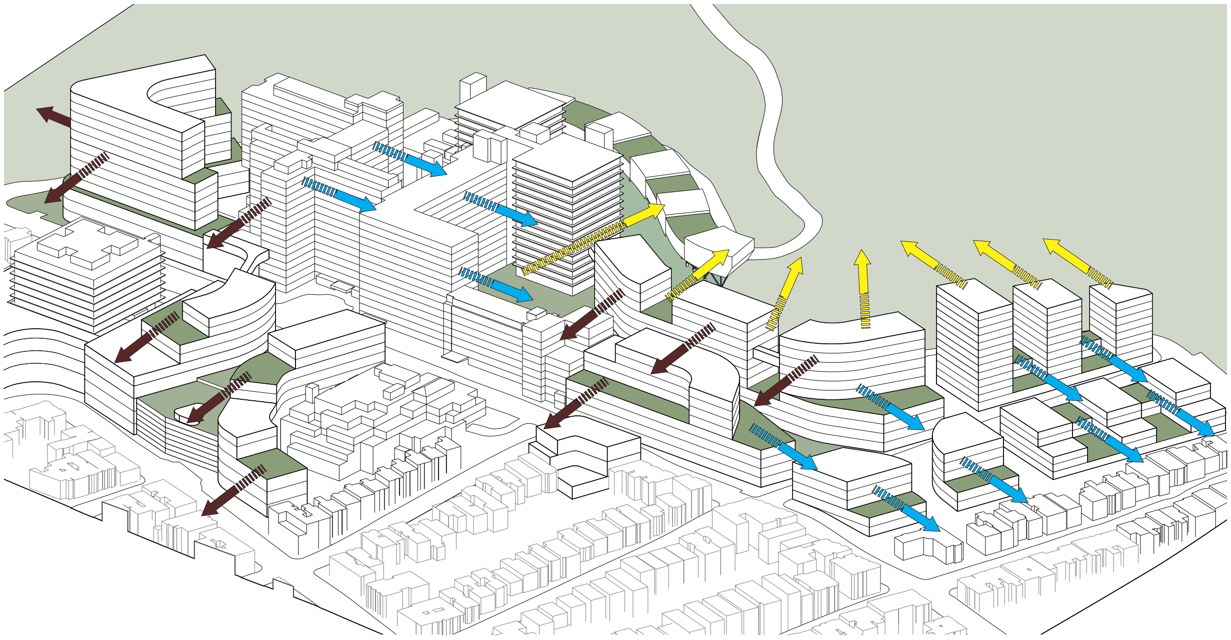
2. Public facing programs at ground levels, upper stories restriced to UCSF-affiliated community.

3. Activated ground floor

8.1 CAMPUS DESIGN PRINCIPLES

C1 Orient buildings to leverage the natural topography and create views in and out of the campus.

- Taller portions of buildings should abut the hillside, while lower scaled structures should be located closer to public streets and campus promenades.
- Buildings should provide for slot views of Mount Sutro from key public locations, such as Golden Gate Park and street intersections via breaks in building massing and differences in height.
- Interior floor plates should be designed to enable informal or formal gathering and shared spaces where there is access to significant views.
- Where feasible, new structures should include comfortable, usable roof gardens or terraces, which can act as a direct extension of the interiors and circulation spaces.
- Exterior terraces should be designed with attention to appropriate solar access and wind mitigation features.
- Mechanical equipment should be screened from view.



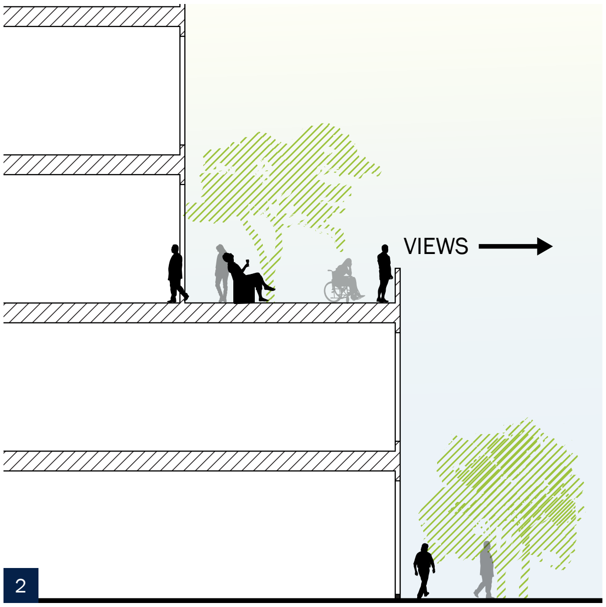
8.6. Buildings should optimize views to Mount Sutro, the ocean, and Golden Gate Park.

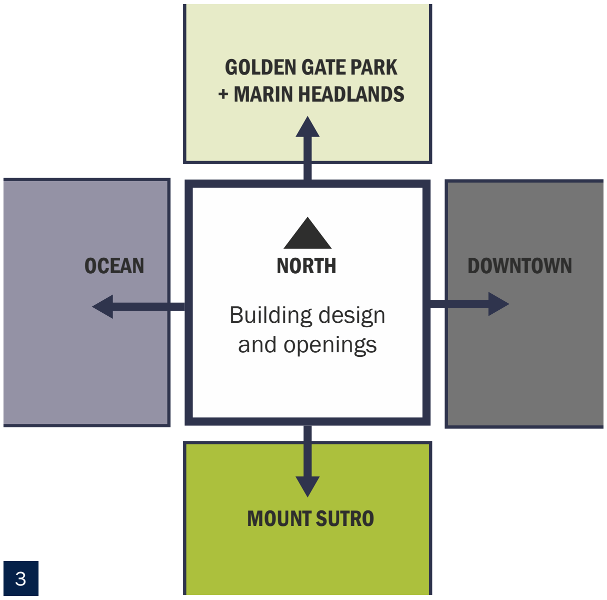
Legend

🟨 Forest views

🟦 Ocean views

🟫 Park/city views



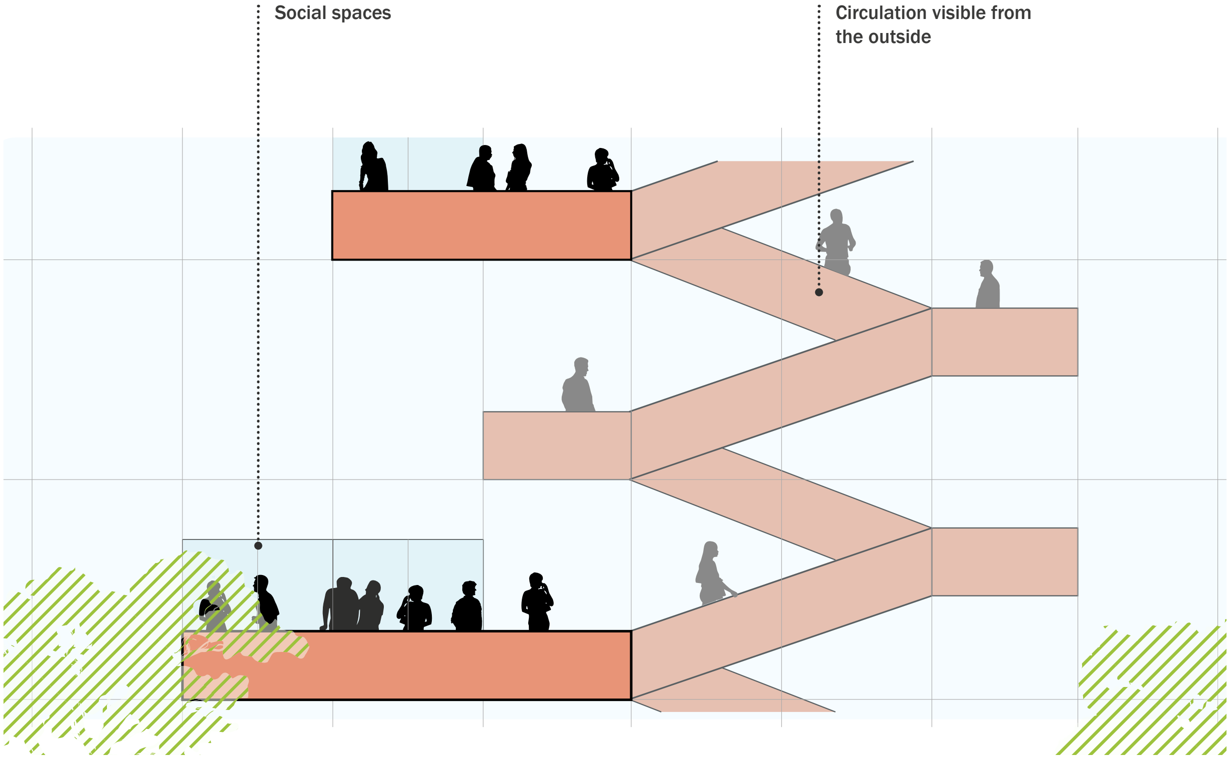


1. Roof terrace with views
2. Upper level views enhance user experience
3. Optimize for site surroundings
4. Ocean view from Koret Vision

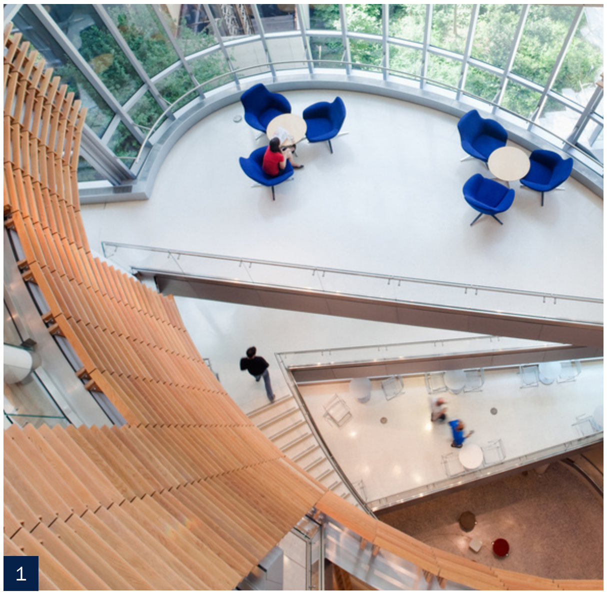
8.1 CAMPUS DESIGN PRINCIPLES

C2 Design vertical circulation within buildings and in the public realm as a campus feature.

- All vertical circulation elements should be obvious, functional, and inviting.
- Interior and exterior vertical circulation (stairs, escalators, elevators) should be multifunctional, not only to move people through the campus, but allow opportunities for small gathering spaces and areas of stimulating engagement.
- Interior and exterior stairs should be conveniently located, assist in wayfinding, and encourage everyday use.
- Interior stairs should be designed to highlight interesting views, such as vistas of Golden Gate Park or Mount Sutro, or special indoor area overlooks, and support appealing walking routes between activities.
- Circulation in new and renovated buildings, when placed along the exterior facade, should allow for transparency between interior stairs and the exterior.



8.7. Whenever possible, circulation areas should be located towards the outside of buildings to maximize daylight and allow these functional spaces to double as comfortable social areas.



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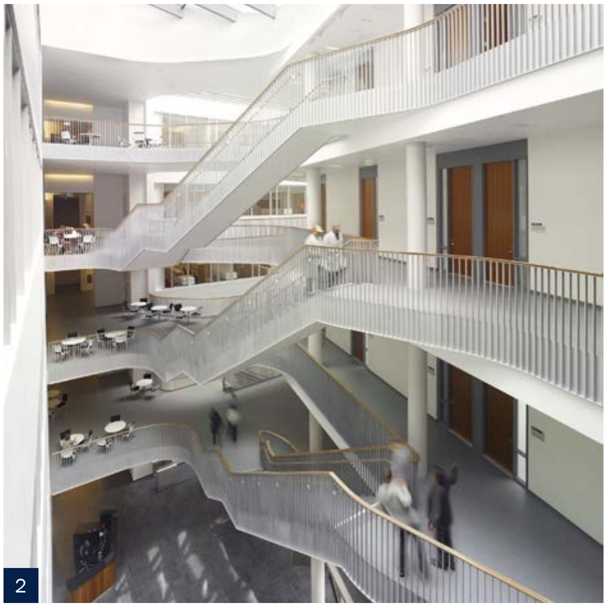

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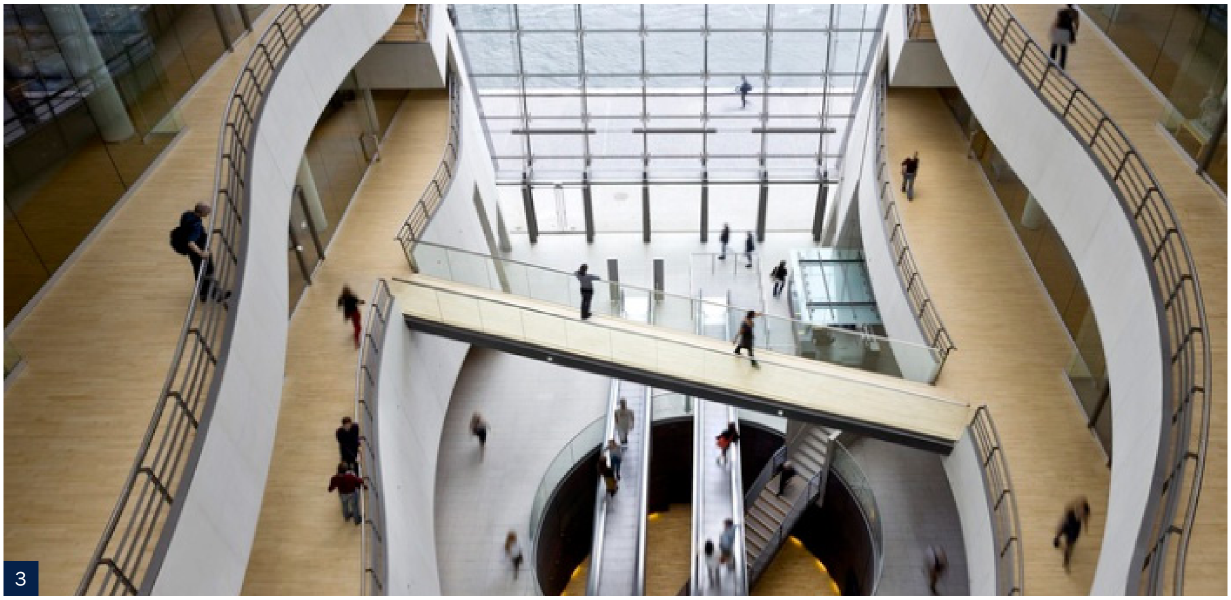

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1. Atrium connection between existing buildings and new additions

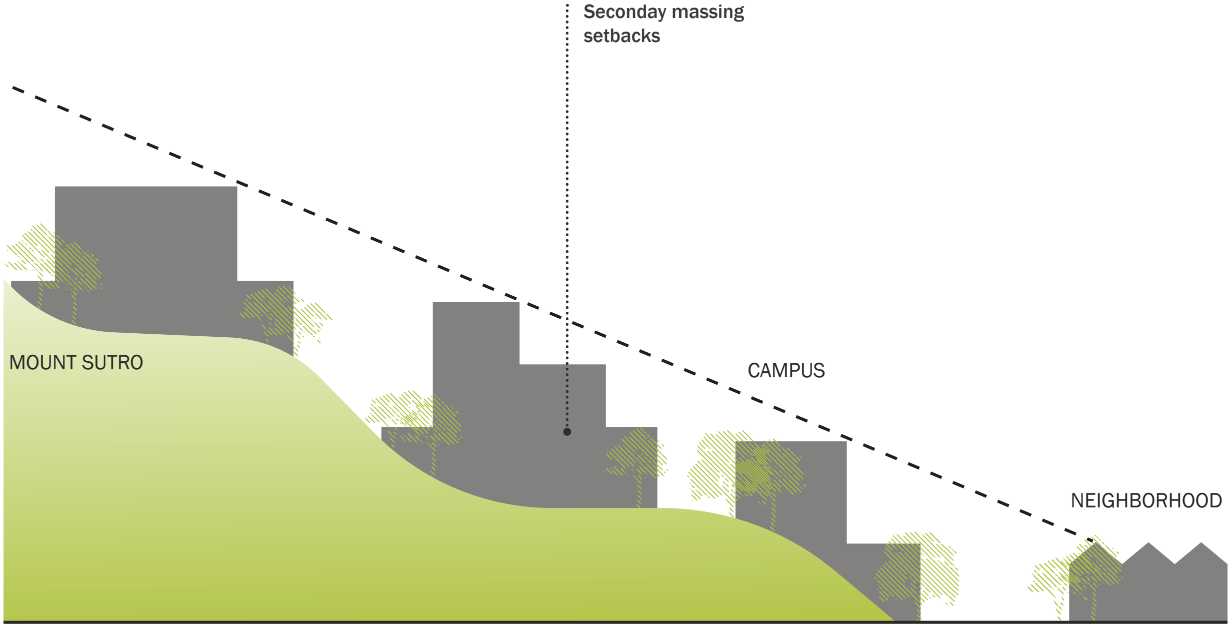
2. Interior circulation

3. Vertical circulation with vistas

8.1 CAMPUS DESIGN PRINCIPLES

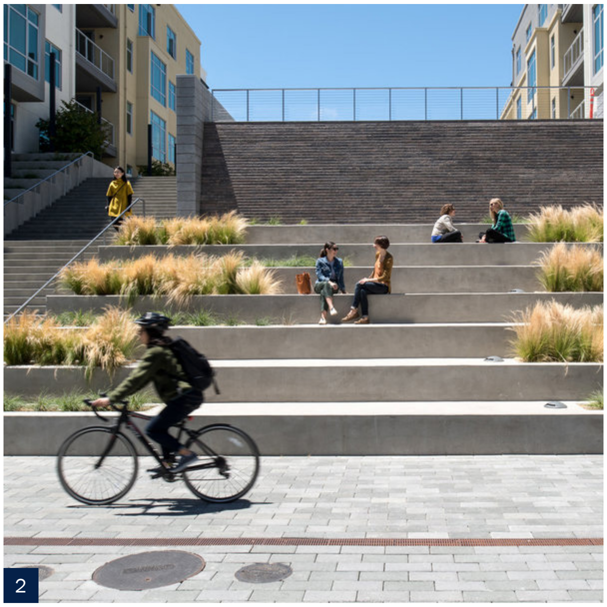
C3 Create building massing to have respectful relationships with neighboring structures and natural features and create a positive environment for all users.

- Siting and massing of new buildings should coordinate with on-going public realm improvements.
- Building massing should transition from Irving Street to Mount Sutro and maintain a similar scale to surrounding structures. Larger campus buildings should include secondary massing refinements as feasible that reduce perceived scale.
- Effective arrangement and proportion of buildings should create neighborly relationships with existing structures at the campus boundaries.



8.8. Massing should transition from the neighborhood up the hill with massing refinements and setbacks to preserve human scale.


1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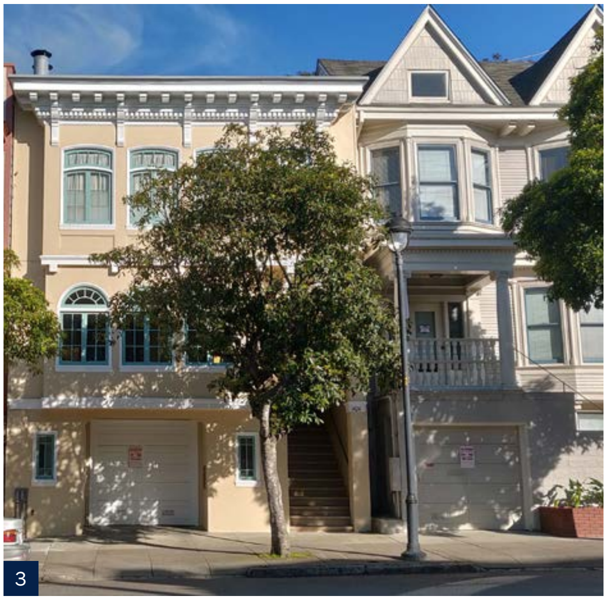
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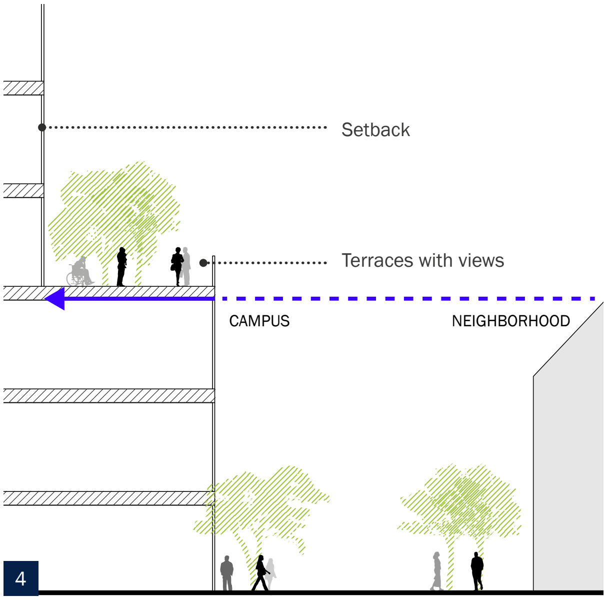
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1. Massing and topography
2. Neighborhoods with topography
3. Neighboring houses in Cole Valley
4. Setbacks open up views

8.1 CAMPUS DESIGN PRINCIPLES

Higher volumes near the center of campus

Lower volumes near Kirkham Avenue

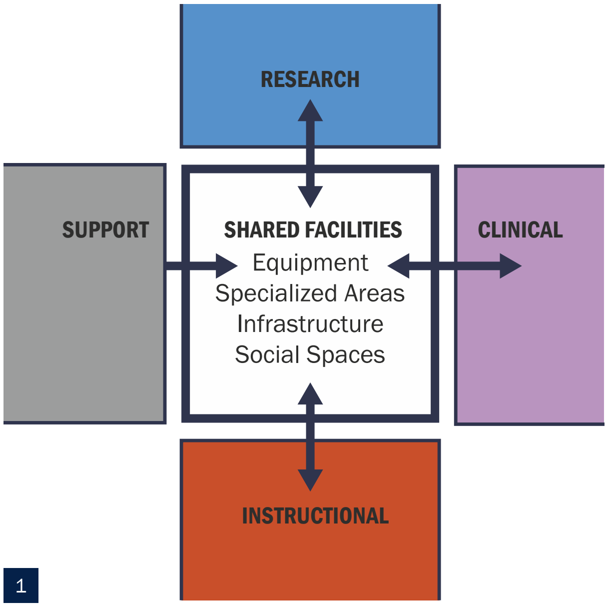
For illustrative purposes only: image does not represent architectural design.

View corridor preserved

8.9. Massing should take cues from neighboring houses, existing campus buildings, and natural elements to guide volumes at street level and secondary massing setbacks higher up.

C4 Maximize the usable area within campus buildings.

- Shift away from less efficient, central corridor circulation to configurations that emphasize open and consolidated program areas.
- Expand shared facilities to limit the replication of expensive, space intensive specialized equipment.
- Facilitate operational adjacencies through accessible and flexible central shared spaces that can adapt to arising needs.
- Highlight opportunities for convergence within campus buildings by maximizing the co-location of formal and informal gathering areas.



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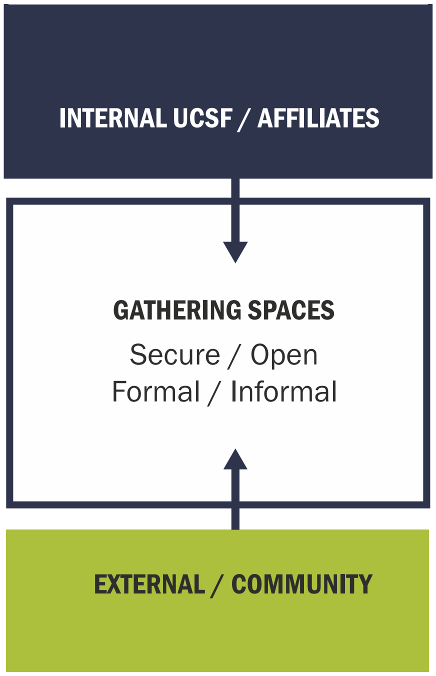
1. Shared facilities increases opportunities for convergence and efficiency

2. Strategic adjacencies limit the need to replicate equipment

8.1 CAMPUS DESIGN PRINCIPLES

I1 Provide spaces that contribute to and encourage convergence among UCSF's missions of research, education, and patient care.

- Locate high-quality and convenient spaces to promote collaboration. Ensure these spaces have access to appropriate audio-visual and information technology to support convening activities for internal UCSF staff and faculty.
- Explore and apply contemporary, open design approaches to encourage teams from different fields to work together.
- Provide space for interactions with external (non-UCSF) entrepreneurs in formal and informal meeting areas, while maintaining appropriate levels of privacy and security.



8.10. Conceptual adjacencies.

1

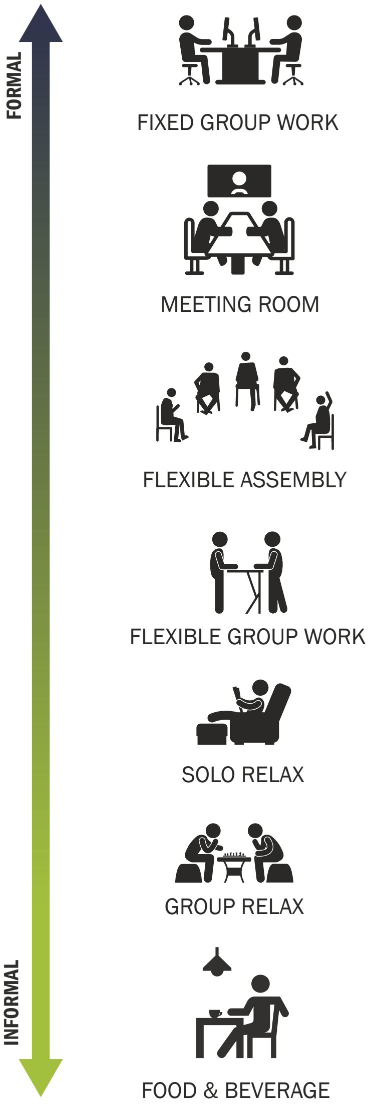
2

1. Accessible spaces can bridge user groups for collaboration

2. Lower floor have public, open areas; upper floors offer smaller, quiet gathering areas

I2 In addition to dedicated work spaces (including private offices), all buildings should provide ample space for informal gathering and meeting.

- Circulation areas should include generous gathering spaces, adjacent to more formal teaching and learning configurations.
- A diverse range of seating options should be provided within both informal and formal meeting areas.



8.11. Prototypical range of gathering spaces for formal/informal uses.

1. A variety of spaces ensures flexibility and collaboration

2. Food/beverage venues can be used for informal discussions

World-Class
Welcoming
Integrated
Compact
Legible

I3 Make innovation visible.

- Incorporate art, exhibitions, and interactive elements to showcase UCSF's unique contributions and ongoing discoveries.
- Highlight UCSF's missions and the current happenings throughout public facing spaces and in locations with high visibility: atria, lobbies, outdoor plazas, and concourses.
- New building facades should avoid unnecessarily opaque and closed structures where possible without compromising security and building performance.

1

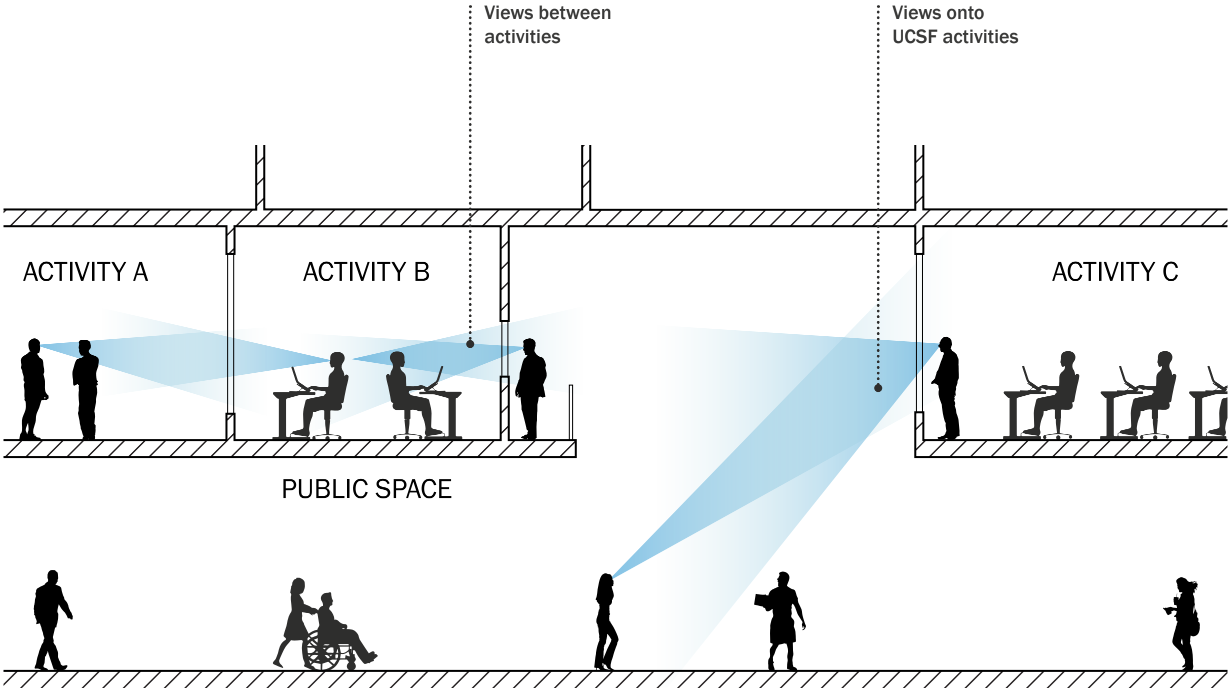
2

1. Color, materials, and lighting frame building perception

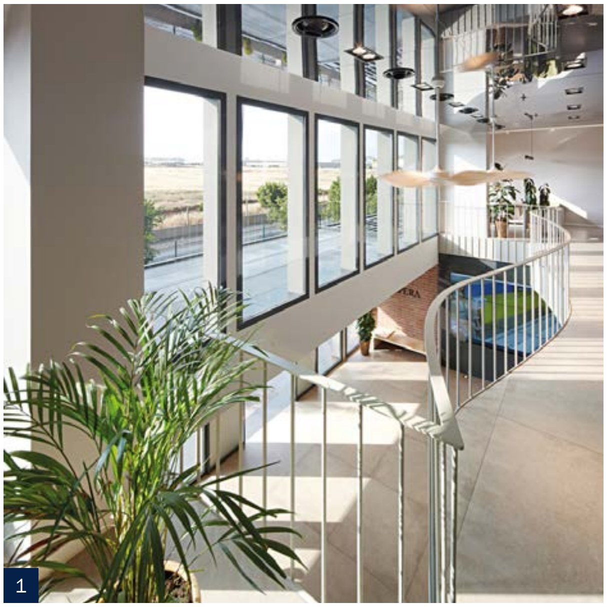
2. Transparency of activities

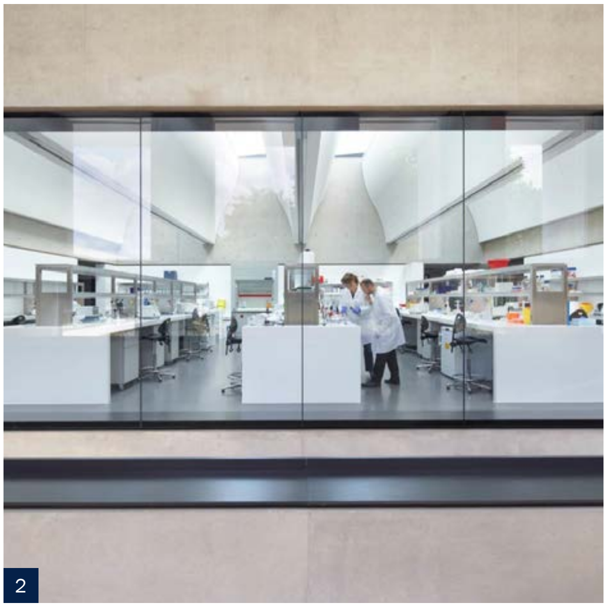
I4 Design working and learning environments that enhance wellbeing and user experience.

- Prioritize visual and physical access to daylight and nearby outdoor environments.
- Enable visual connections into and out of specialized spaces. Adjacent departments should achieve a minimum level of transparency to promote inter-disciplinary exchanges and campus-wide convergence.
- Introduce biophilic elements, such as plants, views, and natural materials to foster healthy work environments.
- Enhance the wellbeing of users by reinforcing their connection to the environment and to each other.



8.12. Transparency creates opportunities for convergence and inter-disciplinary collaboration amongst UCSF members and showcase internal activities for the broader community.





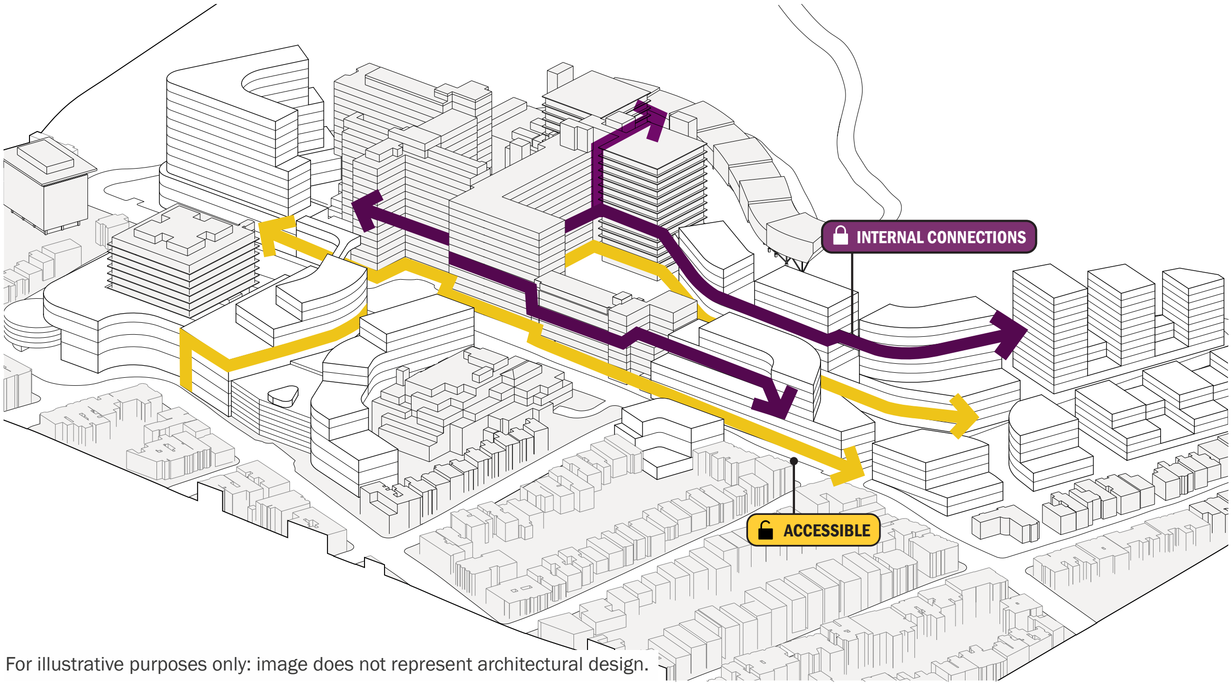
1. Large openings with views

2. Transparency in specialized areas highlights ongoing activities

3. Indoor green elements and light

I5 Establish interconnected and continuous ‘concourses’ for campus-wide use.

- All new and existing buildings should have an organized system of climate-controlled, upper story ‘concourses’ to help UCSF affiliates clearly navigate between buildings and campus districts.
- Design new building facades and architectural features to express the concourse, especially around Saunders Court.
- Concourse may include a portion of a building floor with a focus on circulation, meeting, and access to services.
- Concourses may include:
  - appropriate wayfinding;
  - secure check point to public lobbies within each building;
  - dedicated spaces to showcase scientific achievements, and campus news;
  - locations for secure campus hoteling;
  - formal and informal meeting areas;
  - conferencing facilities;
  - shared facilities, equipment, services;
  - high-quality personnel dedicated to providing technological tools.



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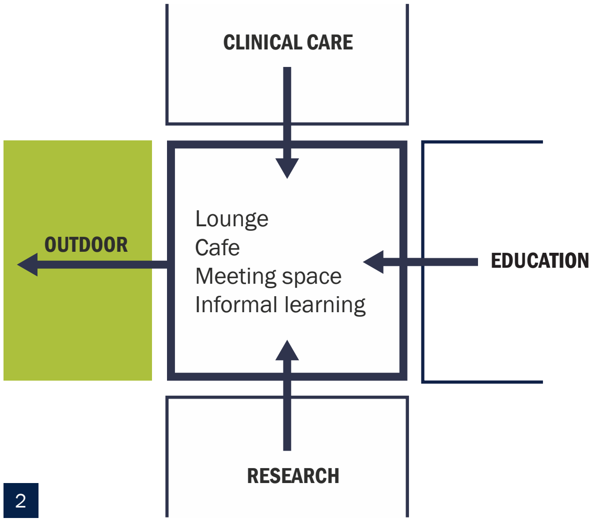
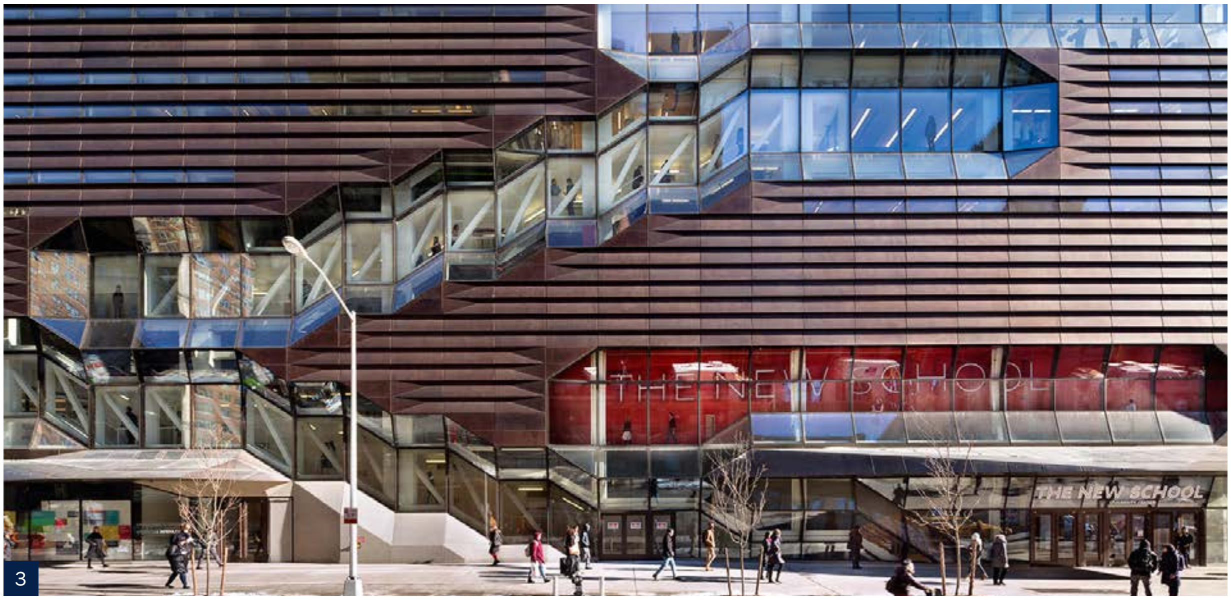
8.13. Ground floors are active and include lounges, retail, cafes, assembly halls, and public programs. Internal connections on the upper stories support better collaboration and may be restricted to UCSF-affiliated community.





1. Concourse with gathering areas and views to upper, secure stories

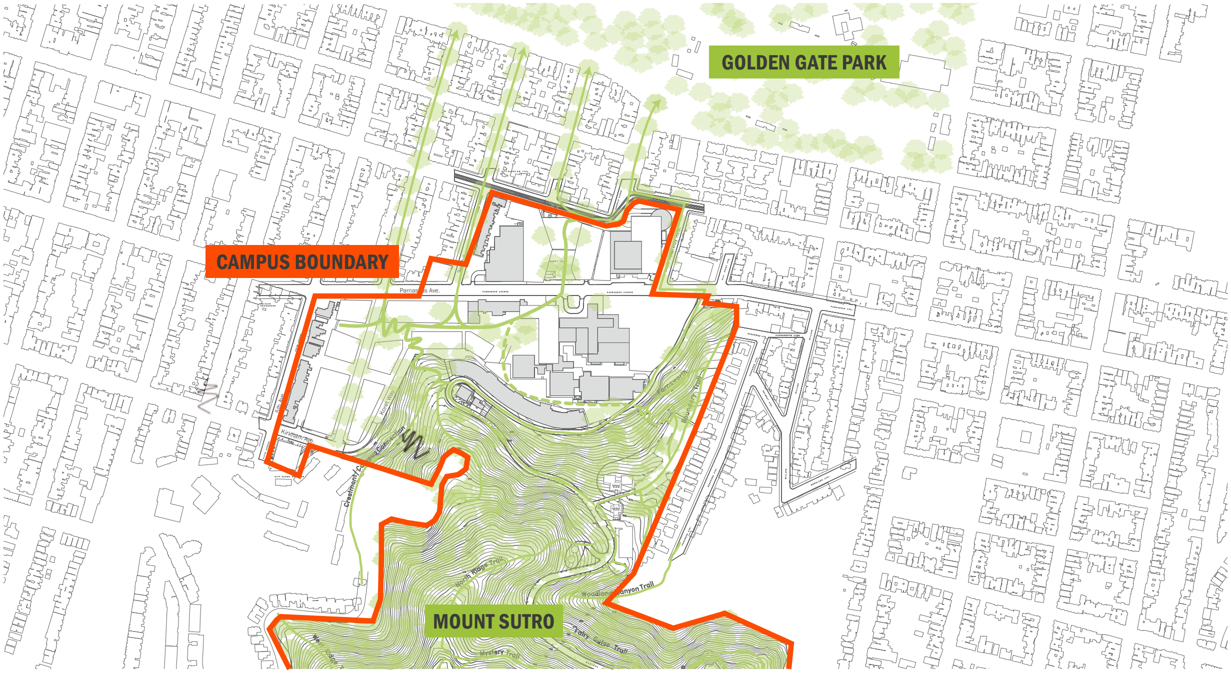
2. Strategic program adjacencies can bridge between departments

3. Facade with visible circulation

8.1 CAMPUS DESIGN PRINCIPLES

W1 Bring nature from “Park to Peak,” connecting Golden Gate Park to Mount Sutro through the campus.

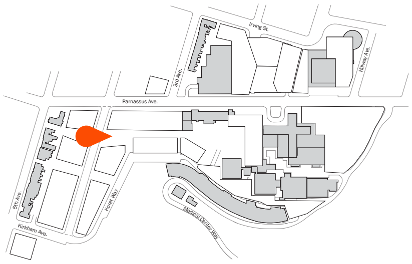
- Establish long and short-term strategies to enhance the campus landscape and help integrate with Mount Sutro and Golden Gate Park.
- Develop a long-range planting strategy, including initial planting, establishment, sequencing, and maintenance.
- Recognize role in local ecology as both habitat and recreational amenity.
- Create a landscape that is fully integrated with the immediate neighborhoods.
- Make the public realm areas of the campus an open amenity to nearby residents, as well as learners, faculty, patients, researchers, and visitors.



8.14. The landscape on campus bridges between Mount Sutro and Golden Gate Park.

For illustrative purposes only: image does not represent architectural design.

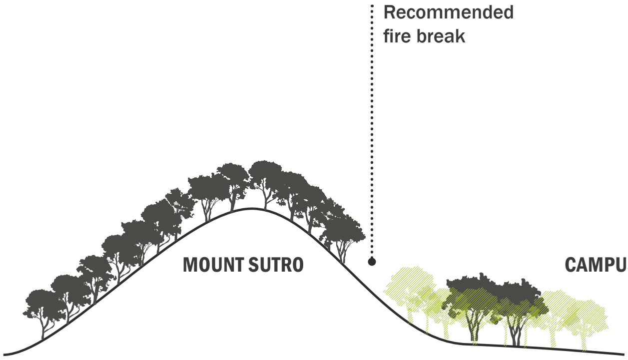
8.15. The edges of the campus can become porous, inviting spaces that bridge with the neighborhood.



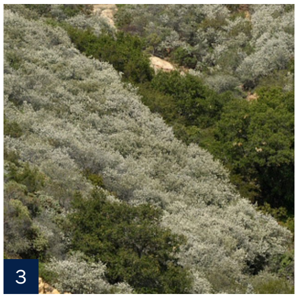
8.1 CAMPUS DESIGN PRINCIPLES

W2 Design outdoor environments that are appropriate for San Francisco and the particular context of Parnassus Heights.

- Provide a distinctly coastal California landscape aesthetic and ecology.
- Integrate campus landscape with Mount Sutro reforestation efforts, including fire prevention strategies.
- Recognize the importance of cultural landscapes in the neighborhood and integrate in the public realm with adapted species.
- Design buildings and public spaces to address the local microclimate (wind, solar access, fog). Exterior spaces should function for year-round occupancy and include wind mitigation treatments, heating elements, and efficient lighting.
- Landscaping should incorporate native plants local to the surrounding environment or adapted plants whose characteristics allow them to coexist in the habitat without posing threats.



8.17. A fire break between the forest and campus can help mitigate risk.



Plants inspired by native habitats, accommodating heavy usage
The campus site is located in an ecotone area between upland woodland and the former native sand dune shrubland.

1. Adapted chaparral landscape
2. Grasses and shrubland
3. Chaparral landscape
4. Native dunes

Trees that relate to the Mount Sutro landscape

Wind screens for a warmer, intimate environment

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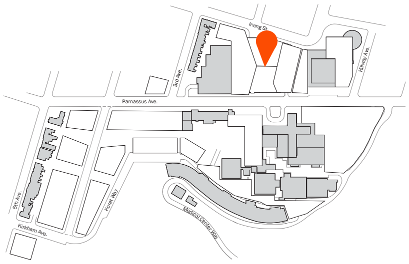
8.18. A planting palette made of primarily native and adapted species would respond to the local microclimate.

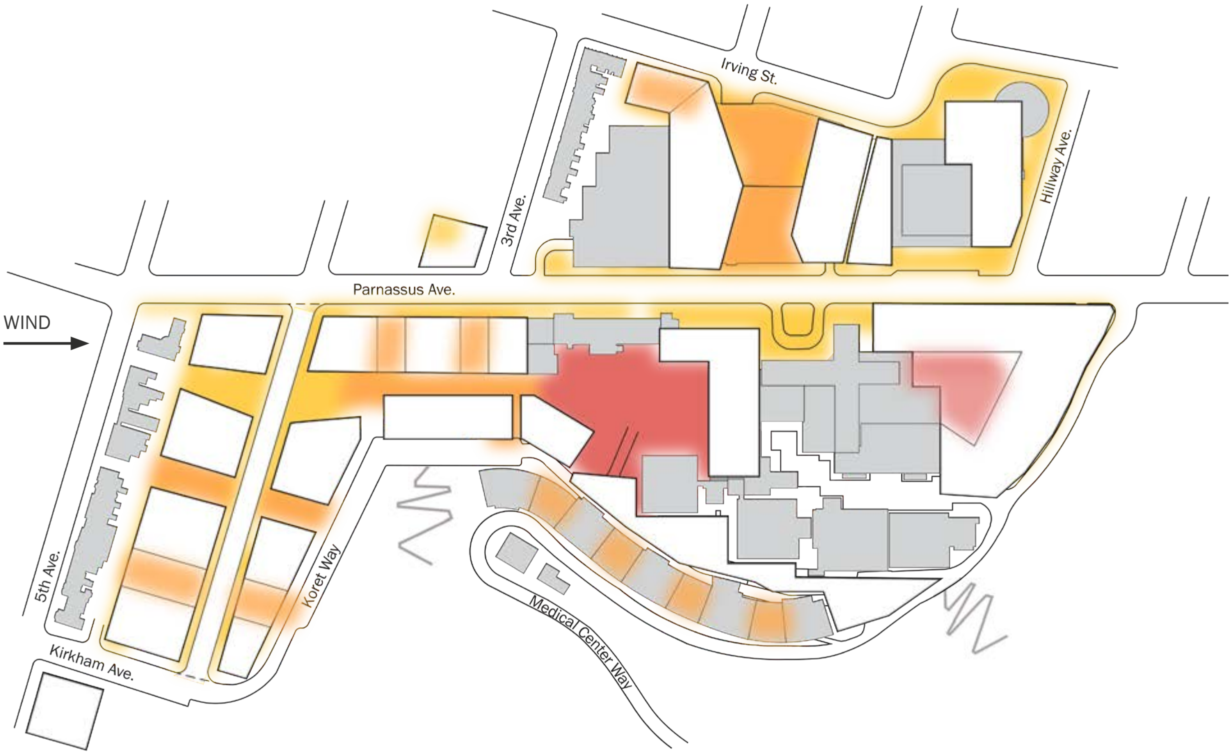
Native planting layers



8.1 CAMPUS DESIGN PRINCIPLES

W3 Provide opportunities for unique open areas to connect, pause, sit, and interact.

- Identify and classify open space typologies in three categories, recognizing the attributes, opportunities, and constraints of each.
- **Linear landscapes:** sidewalks and alleys primarily adjacent to one building facade;
- **Terraces and Plaza landscapes:** campus corridors between buildings, rooftop terraces bounded by two buildings facing each other;
- **Courtyard landscapes:** central courtyards and other spaces surrounded by tall buildings on at least three sides.
- Complement and enhance access to natural areas and outdoor spaces.
- Create semi-enclosed indoor/outdoor spaces with the use of landscaping, porches, bay windows, extrusions and projections to support year-round thermal comfort and usability.



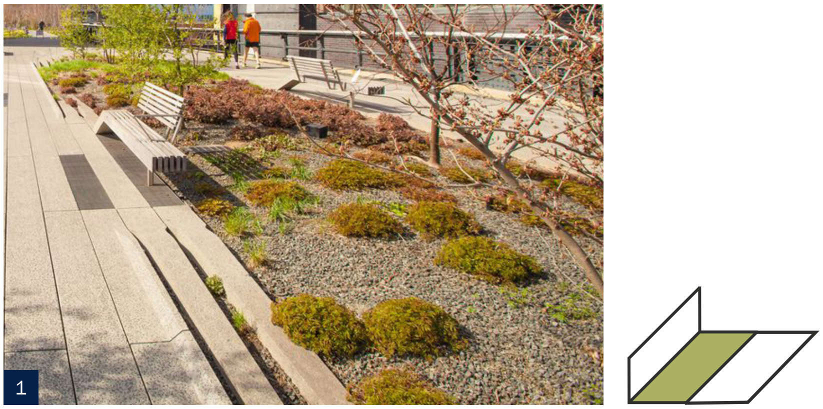
8.19. The public realm at Parnassus Heights can be classified into three typologies.

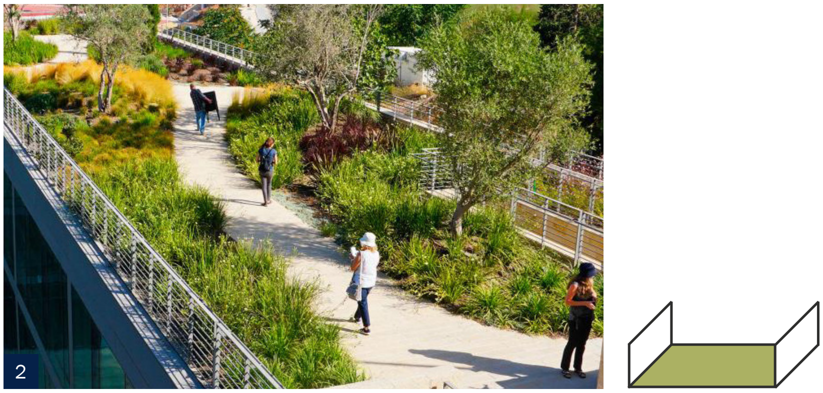
Legend

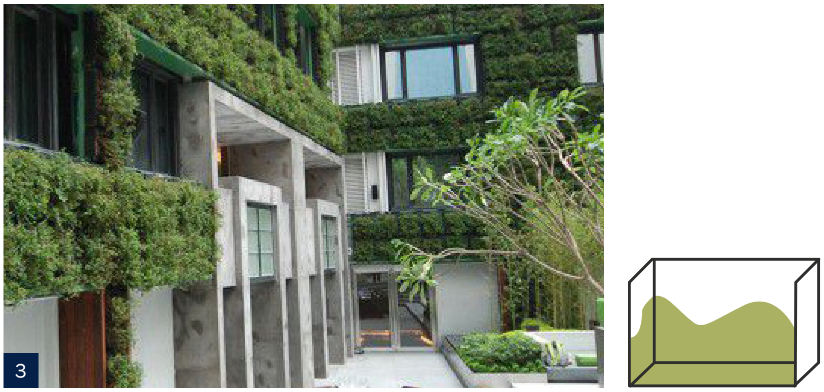
● Linear landscapes

● Plazas and terraces

● Courtyards







The three open space typologies aim to maximize the integration of planting, capture stormwater, and enhance the public realm.

Legend

1. Linear landscapes
On structure
At grade
Streets and circulation

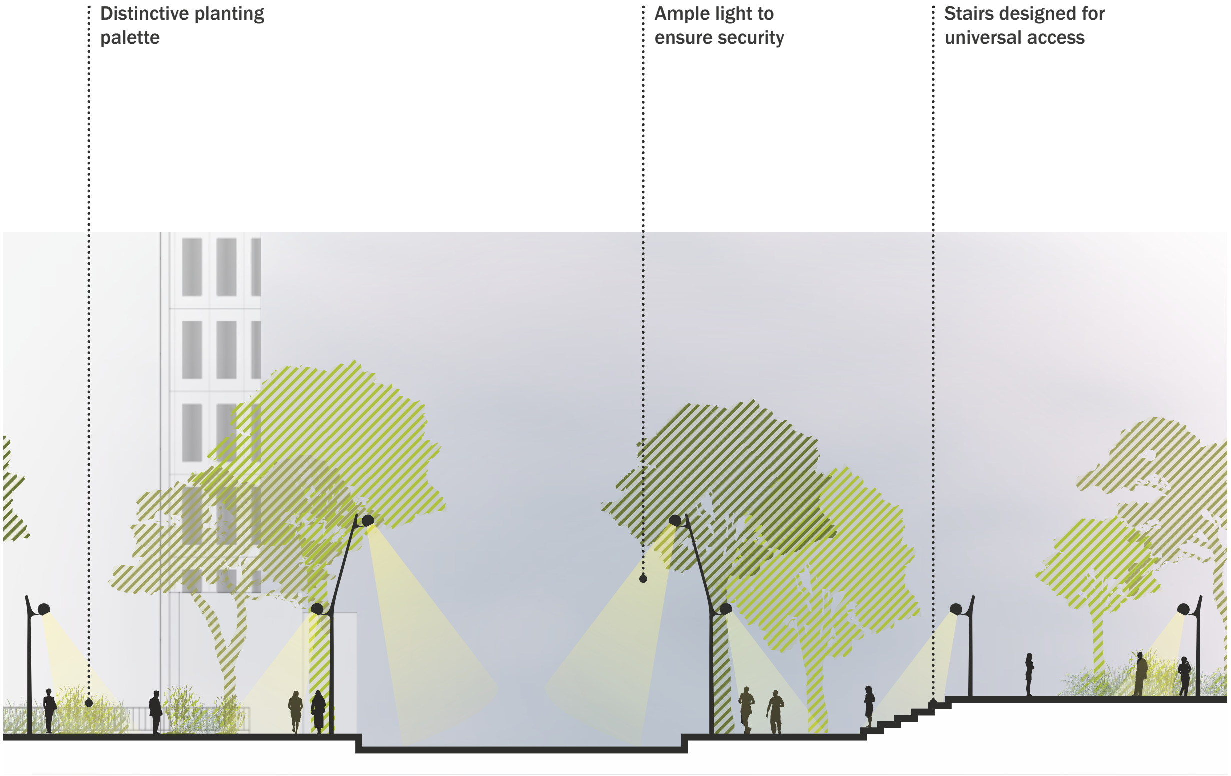
2. Plazas and terraces
Terraces
Ground levels bounded by buildings

3. Courtyards
Enclosed spaces
Courtyard envelope

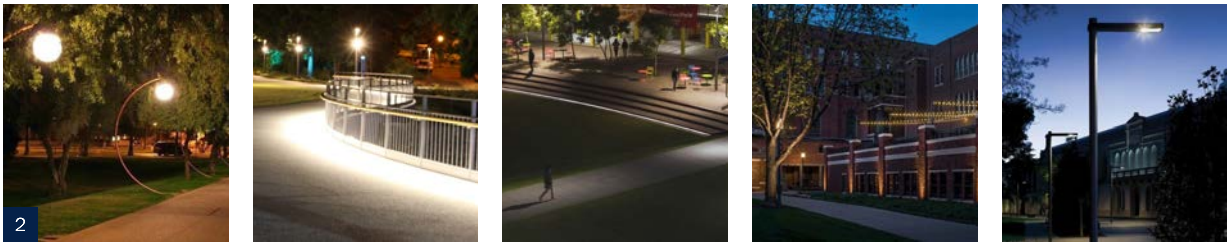
8.1 CAMPUS DESIGN PRINCIPLES

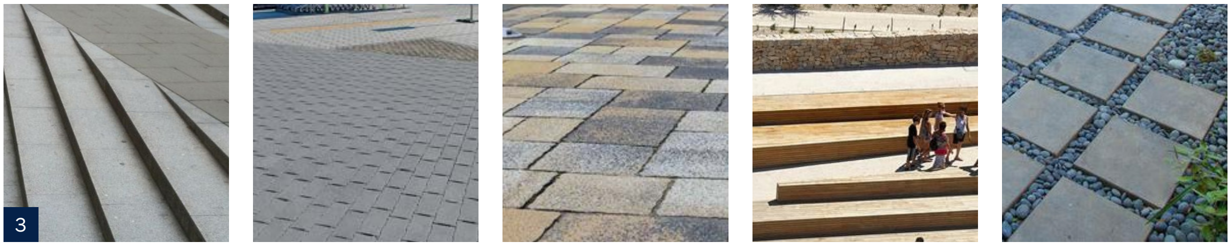
W4 Public realm design should prioritize pedestrian connectivity, safety, orientation, and experience.

- Maintain universal access throughout campus, and go beyond minimum requirements in public/patient-facing areas in terms of mobility and visibility.
- Optimize outdoor circulation to also serve as gathering amenities for campus users.
- Develop planting palette to emphasize districts' distinctive character and enhance orientation.
- Develop campus-wide lighting strategies, including elements that help identify the districts.
- Deploy effective lighting design for safety and visibility 24/7. Adaptable light fixtures should be designed to modulate energy consumption and lighting levels, responsive to program needs and neighborhood concerns.



8.20. Conceptual street section.





Legend

1. Distinctive planting palette
2. Outdoor lighting strategy
3. Ground and material treatments

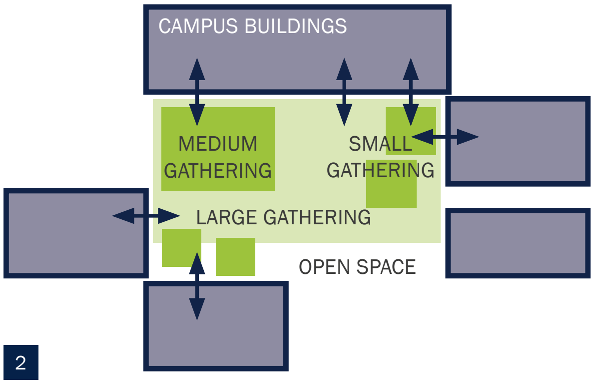
8.1 CAMPUS DESIGN PRINCIPLES

W5 Create a Campus Heart for campus experience that supports socializing, listening, engaging, sharing, convening, connecting, and entertaining.

- Locate a central courtyard space to incorporate both ground plane and surrounding building walls.
- Include planting at ground level that minimizes additional shade creation.
- Create a green envelope in the space including building facades with landscape interventions such as green walls, water downspouts, or window planters.
- Design the space to function at different scales to maximize program and identity.
- Allow for individual and small group activity zones (pockets).
- Design flexible multi-use areas that can provide a cohesive large space for campus event gatherings (program layers).

8.21. Various scales of gathering spaces provide learners, visitors, faculty, and researchers with comfortable options.

1



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3

4

1. Discrete planting palette on roofs
2. Open spaces should accommodate different sizes of gathering
3. Small trellises to minimize draft
4. Green facades do not add shade

8.1 CAMPUS DESIGN PRINCIPLES

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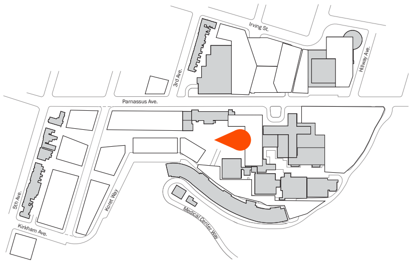
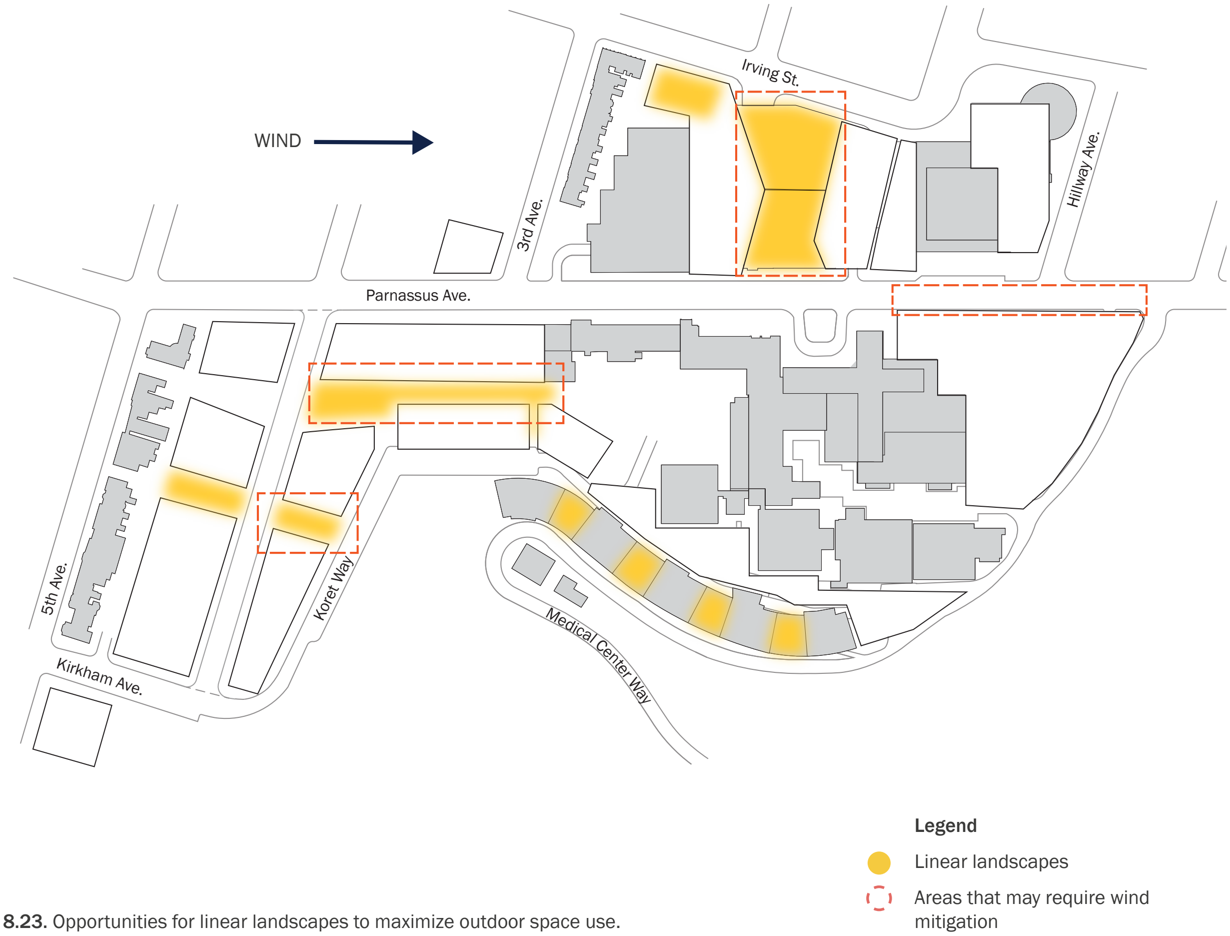
8.22. Taking advantage of the grade changes in Saunders Court, there is an opportunity to include multiple flexible use areas to program the space for different group sizes.

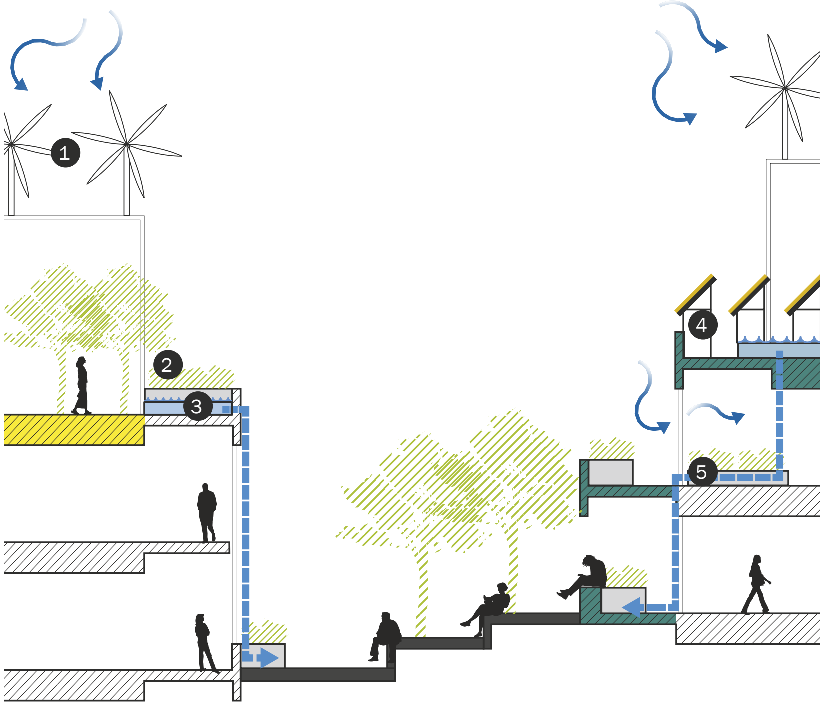


W6 Maximize the use of appropriate terraces and rooftop spaces as areas for social interactions, wellness, and research.

- In occupiable areas shielded from the wind, design terraces and outdoor spaces for pedestrian access, both in public and restricted zones.
- Favor wind-protected terraces with panoramic views, integrating demonstration garden elements such as medicinal, native, and culturally significant plants.
- Consider meditation, recreational, educational, and recuperative gardens as wellness contributors and places of respite.
- In non-occupiable areas, where dominant winds make human activity uncomfortable, create green roof gardens for heat island effect reduction and water detention.
- Incorporate green infrastructure systems, and consider solar and wind energy capture.



8.23. Opportunities for linear landscapes to maximize outdoor space use.



1. Wind energy capture
2. Occupiable green roof terrace
3. Stormwater capture and storage
4. Solar energy capture
5. Water filtration

8.24. Optimize use of terraces and balconies
Where climate allows (protected from wind by adjacent buildings) terraces can provide gathering areas; where winds prevail, terraces can be landscaped and have renewable infrastructure elements like stormwater management and energy creation.

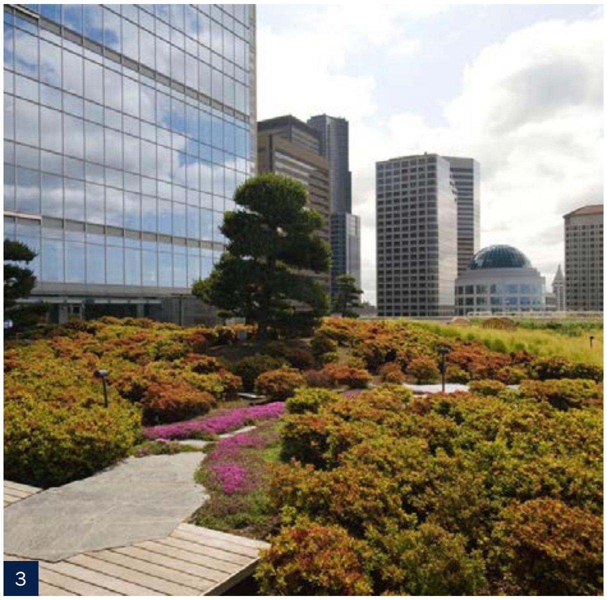
Legend

🟨 **Occupiable terraces**
Gathering areas
Healing gardens

🟩 **Non-occupiable terraces**
Green roofs
Renewable infrastructures

1

2



3

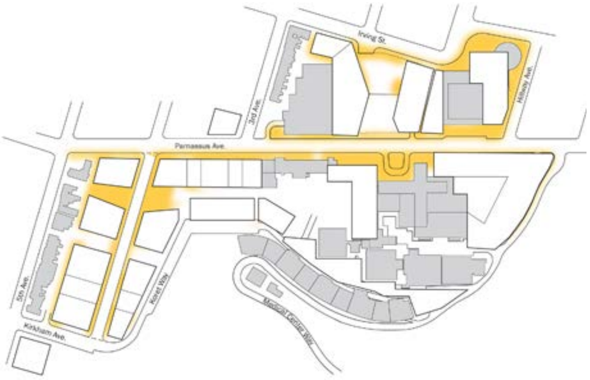
4

1. Wind mitigation screens
2. Roof terrace on the Dolby building
3. Urban gardens with distinctive planting palettes
4. Unoccupiable green roof

8.1 CAMPUS DESIGN PRINCIPLES

W7. Introduce new streetscape gateway elements on Irving Street and Parnassus Avenue.

- Create campus gateways with clear graphics, landmark signs.
- Identify best locations for planting based on solar exposure to enhance pedestrian experience along sidewalks.
- Prioritize shade trees on sidewalk sections where buildings are already casting shadows to preserve sunny pockets.
- Plant deciduous trees and/or primarily ground cover on sunny areas.
- Define sidewalk materials that reinforce the character of each street, while aiding with site orientation.
- Implement campus lighting standards and utilize light fixtures (poles) on public streets as additional character-reinforcing elements.

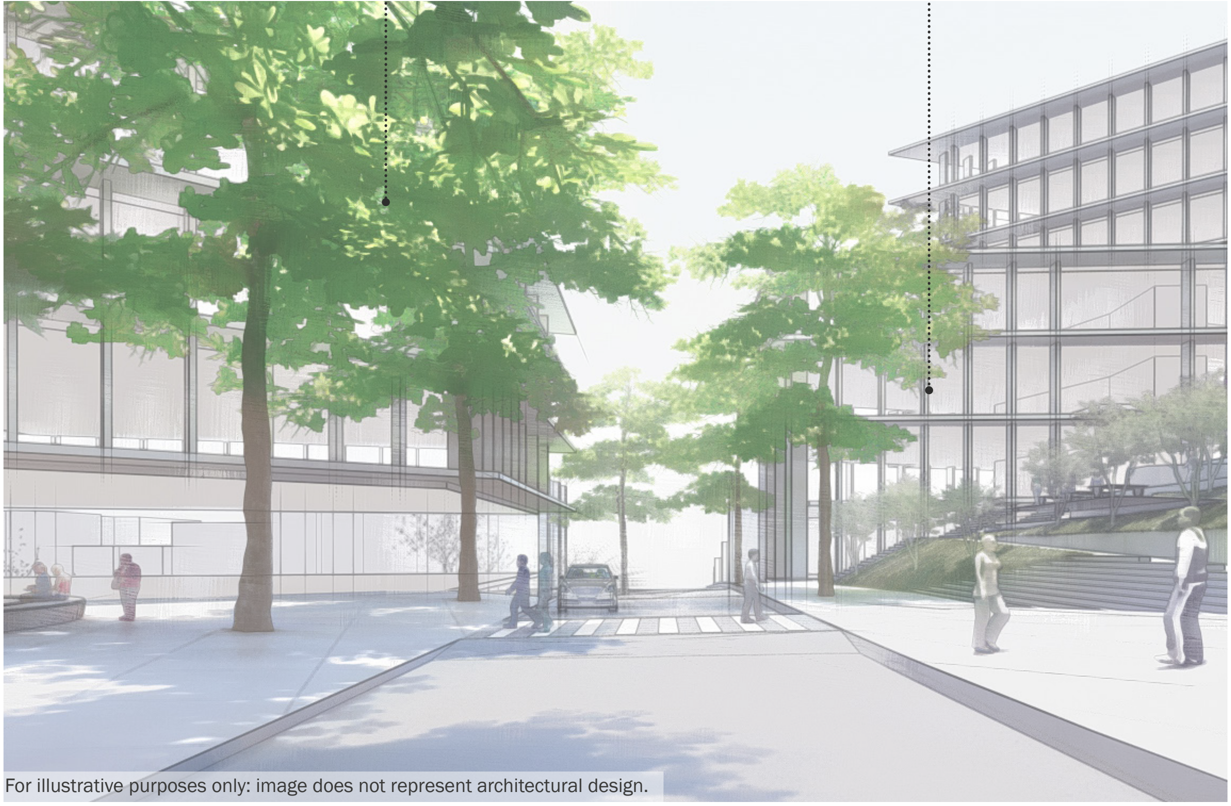


8.25. The linear landscapes are opportunities for strengthening the campus character, incorporate green infrastructure strategies, and create an inviting walkable environment.

Gateway, landmark signs

Unique sidewalk treatments

Distinctive signage and lighting standards



Larger, more trees on shaded sides of sidewalks

Fewer trees to maintain 'sunny pockets'

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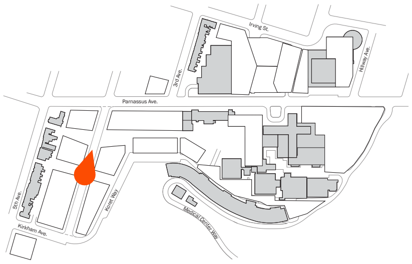
8.26. Low planting will be favored on sunny areas to maintain welcomed sun exposure for pedestrians in otherwise windy corridors. Larger trees will be added on already shaded areas.



8.1 CAMPUS DESIGN PRINCIPLES

In meeting the challenges associated with the long-term stewardship of Parnassus Heights campus resources, UCSF's performance standard will be "Design Excellence." The campus should express UCSF's commitment to leadership, its values, and serving its users. This requires a holistic approach that incorporates expertise in the areas of architecture, urban design, landscape architecture, interior design, engineering, construction, security, and sustainability.

UCSF should establish a **Design Excellence Legacy** at Parnassus Heights by:

1. **Developing a program** that results in dramatic improvements in the design of campus buildings and the positive perceptions they can portray of the institution.
2. **Engaging with distinguished experts** not only in architecture, and urban design, but also interior design, landscape architecture, construction, engineering, resiliency, art, and art conservation.
3. **Conducting on-going peer reviews** during the concept development phase of a project.

WC1 Apply Design Excellence to achieve a contemporary expression of UCSF's mission.

- Engage architects who are recognized design and thought leaders to create facilities that ultimately become respected landmarks.
- Build facilities to reflect the dignity, enterprise, vigor, and stability of UCSF, emphasizing designs that embody the finest contemporary architectural thought. Building designs should aspire to not only suit the occupants, physical program, and historical context, but also contribute to new scientific discoveries that bolster UCSF's ethos and mission.
- Reflect the architectural traditions of San Francisco.
- Avoid an official style.
- Where feasible, incorporate the work of living American artists in buildings and open spaces.
- Adhere to sound construction practices and utilize materials, methods, and equipment of proven dependability.
- Create campus and building designs that are universally accessible.

WC2 Renovate structures to meet or exceed contemporary building standards.

- All new buildings and spaces should respond to campus energy goals, embrace new building technologies and meet state-of-the-art standards for their specific building type or use.
- Renovations should consider the introduction of high performance facade treatments and building systems.
- Designs should be developed that support occupant comfort through increased micro-climatic control.
- Storm water treatment (low impact development), and design catchment and retention areas should exceed California requirements.

WC3 Design for long term resilience and adaptation.

- Apply designs that are economical to build, operate, and maintain.
- Prioritize the use of green materials that meet third-party standards and certifications.
- Utilize adaptable and modular systems to respond to future program space needs to reduce costs of reconfiguration, and accommodate dynamic funding and team sizes.
- During renovation projects, design for de-construction to introduce opportunities for salvage and re-use of existing material.
- Create redundant systems and system connections to fortify the campus against utility failure in case of natural disasters.
- Incorporate passive design strategies, as feasible, to reduce energy demand and full reliance on mechanical systems in order to maintain operability in case of disaster or systemic shocks.
- Incorporate design strategies to address climate change and localized weather event impacts including elements that can be adapted through time as environmental factors change.
- Preference low maintenance species and planting design and durable plant materials that withstand environmental stressors; incorporate long-lived species.
- Where possible integrate green infrastructure systems and integrate with Mount Sutro stormwater management strategies.
- Create landscapes to prevent wildfire spreading: design for natural fire breaks, plant species that are more fire resistant, and integrate with Mount Sutro fire prevention programs.

8.2 BEST PRACTICES

8.2 BEST PRACTICES

This section reflects best practices in the fields of research, educational, and residential environments applicable to Parnassus Heights. Best Practices should be applied to create the best possible environments for learning, healing, and discovery.

Research Space

The objectives for research space are:

- **Foster collaboration** among researchers, **blend** research activities between basic, clinical, and translational;
- Propose **high quality** investigator-assigned and shared resources for both bench and clinical sciences;
- Integrate research with the **clinical entreprise**;
- Secure a space allocation that accommodates **dynamic needs and opportunities**, programmatically and scientifically.

A number of trends in research space design inform the vision. Contemporary research labs are:

- **Core-centric**: High quality shared research resources and co-located equipment limit the replication of expensive, space intensive, specialized equipment. Portions of the equipment and activities traditionally done in a Principal Investigator's (PI's) research space could be shifted to shared facilities.
- **Co-located**: Research teams with critical mass can regroup complementary activities to promote collaboration in high quality shared space. Co-location allows the campus to reorient space allocations thematically.
- **Flexible**: Accomodate dynamic research needs and programs through contractible and expandable labs with modular design and reconfigurable casework, while designating spaces that can be customized to meet specific research needs.
- **Celebratory**: State-of-the-art lab spaces attract and inspire researchers and partners.
- **Collaborative**: Labs can connect physically and visually to nearby offices. Thoughtful adjacencies foster formal and informal interaction.

8.27. Collaboration areas can be integrated with traditional benches.

Research neighborhoods can be designed to encourage teams from different fields to work together while sharing cutting-edge equipment. The shared technology platforms can become a meeting ground for the scientists, inspiring them to try out new tools and expand the scope of their research.

Future research labs will break down boundaries as much as possible, fostering formal and informal collaboration, integrating support areas, staff offices, and circulation spaces with traditionally closed-off research stations.

Collaboration Integrated
Desks and collaboration areas have porous boundaries.

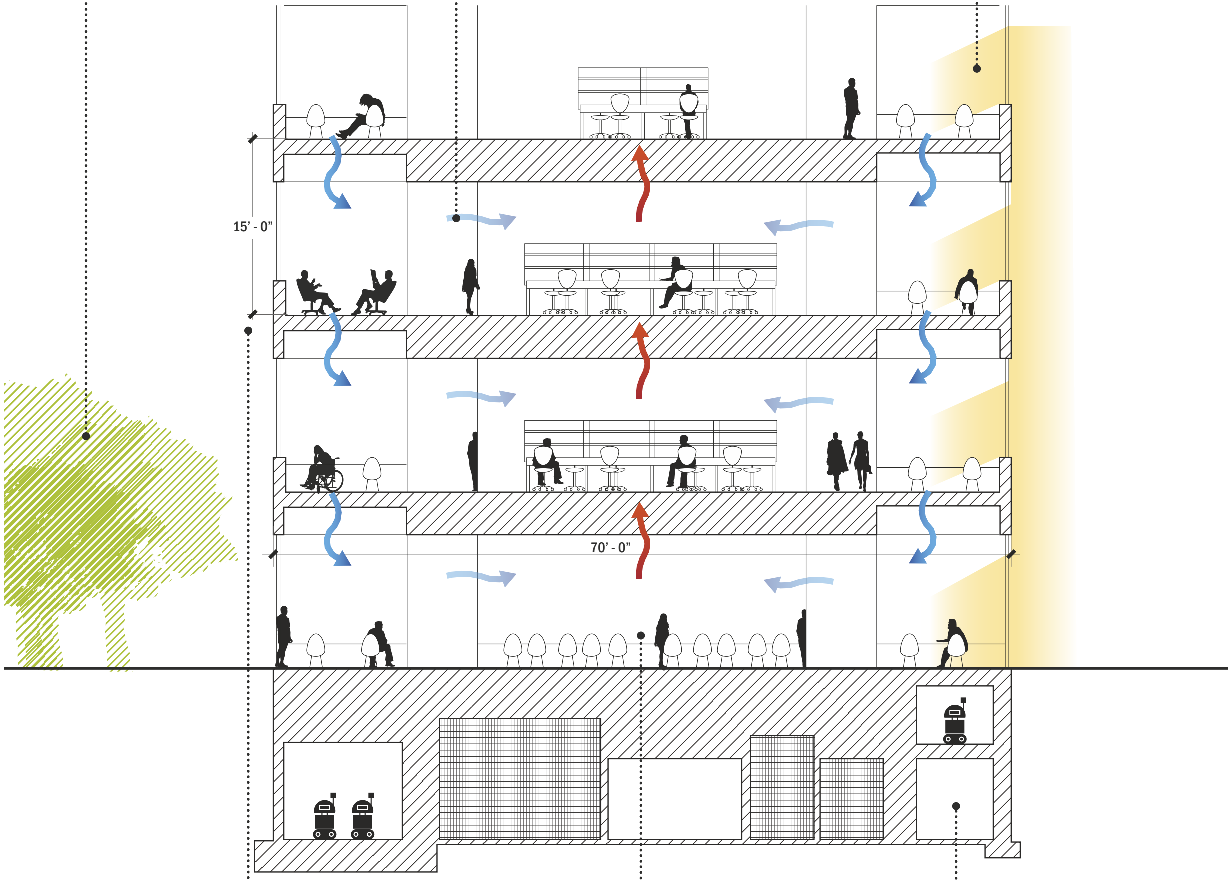
Variety of Scales
Labs accommodate various team sizes and configurations.

Offices Integrated
Faculty offices are close to research activities.

Legend
● Faculty
● Researcher staff
● Collaboration areas
● Vertical connections

8.28. Conceptual laboratory layouts displaying various adjacency strategies.

8.2 BEST PRACTICES



Biophilic design
Facade openings maximize views and proximity to nature.

Healthy indoor environment
Single-pass air in occupied spaces allows airflow transfers to be used as air conditioning when it is safe, with heat recovery chillers.

Daylight
Shading devices help reduce glare and building orientation allows daylight.

High floor-to-floor heights
Allow state-of-the-art equipment and modernized work environments.

Convergence
Strategic adjacencies allow separate teams to meet and collaborate, while maintaining appropriate security levels.

Mechanical systems in lower levels
frees up roof areas for green space and consolidates utility

8.29. Conceptual laboratory building section.

Standard Benchmarks

- Floor plates: 25,000 GSF
- Floor-to-floor heights: min. 16’
- Floor depth: min. 70’
- Lab bay: ~11’ x 33’

Assumptions
(Jacobs Consultancy + peer institutions)

- Experimental: 6-8 FTE, 60-70% of time in lab.
- Hybrid: 4-6 FTE in hybrid wet lab and 2 in dry lab, 60-70% of time at computer.
- Computational: 6-8 FTE.
- Core-centric layouts will allow for a 20% reduction in wet lab space.

Parnassus Heights Research

- Assumed breakdown:
  - 50% of PIs: Experimental (wet)
  - 25%: Hybrid wet/dry
  - 25%: Dry
- Research group sizes (FTE):
  - 25%: 1 to 4
  - 20%: 5 to 7
  - 30%: 8 to 10
  - 25%: 11+

Figure 8.4 describes potential neighborhood area sizes, based on best practices for a range of research types and group sizes. Figure 8.5 indicates desired adjacencies and potential research neighborhood layouts. Other planning approaches can also be considered.

TEAM SIZE	PI Non core-centric	PI Core-centric	PI + 2 Core-centric	PI + 4 Core-centric	PI + 6 Core-centric	PI + 8 Core-centric	PI + 10 Core-centric	PI + 12 Core-centric
WET	200	170	510	850	1,190	1,530	1,870	2,210
HYBRID	150	135	405	675	945	1,215	1,485	1,755
DRY	100		300	500	700	900	1,100	1,300
PATIENT-FACING	225		675	1,125	1,575	2,025	2,475	2,925

8.30. Approximate areas per neighborhood (asf)

1. Wet/Experimental (4 PIs)

2. Patient-facing/Clinical (8 PIs)

3. Dry/Computational (8 PIs)

4. Hybrid (6 PIs)

Legend

● Lab

● Lab support / equipment

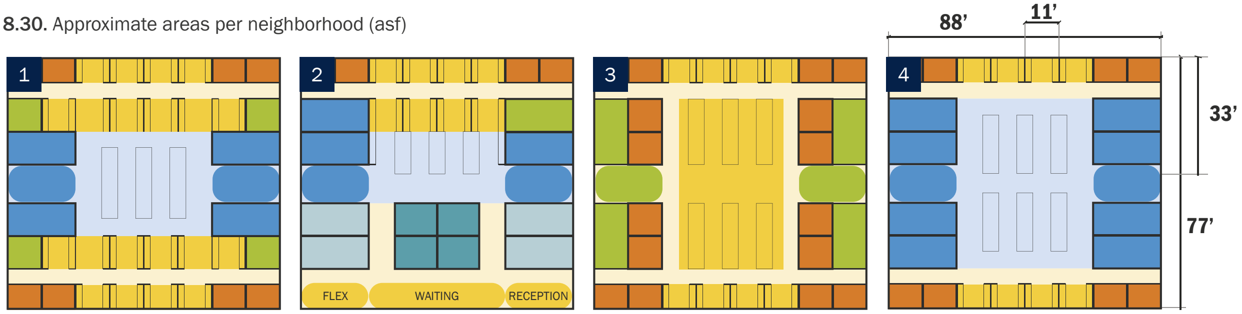
● Clinical research

● Office

● Workstation

● Meeting room

● Exam room



8.31. Conceptual lab module layouts.

8.2 BEST PRACTICES

Education Space

The objectives for education space at Parnassus Heights are:

- **Foster collaboration** among students and faculty with appropriate gathering and meeting spaces;
- Propose **high quality** shared resources for educational uses;
- Integrate innovative learning with the **research and clinical enterprises**;
- Secure appropriate space allocation to accommodate **dynamic needs and opportunities.**

To support contemporary pedagogies, classrooms should be predominantly flat-floored and support multi-modal learning. Such classrooms feature mobile furniture, continuous whiteboard surfaces on many walls, and a wide array of station sizes. Lighting should be multi-directional and de-emphasize the concept of a primary learning wall.

Parnassus Heights has an opportunity to optimize spaces for collaboration and gathering, by promoting flexible classrooms and various types of meeting areas.

Adaptable layouts can support multiple forms of learning from traditional lecture format, to seminars, to small-group active learning activities. These design approaches can be applied to both meeting rooms and classrooms, allowing for interchangeability and expanded group sizes.

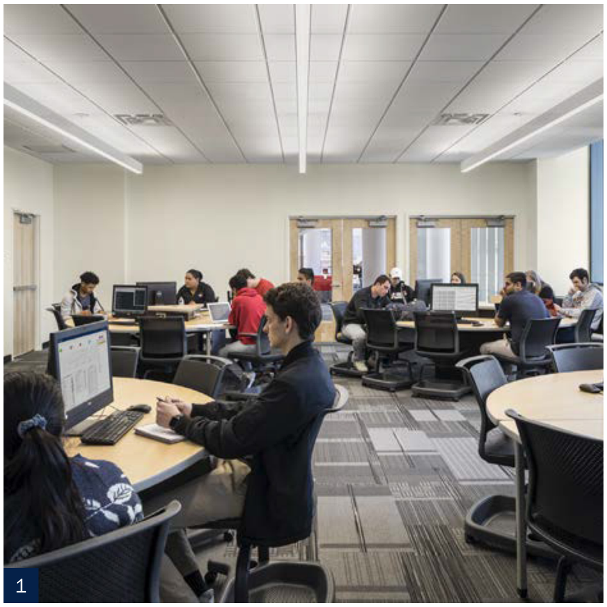
Collaboration: Contemporary teaching approaches emphasize dialogue, formal or informal storytelling, and the active display of ideas. Chapter 4 introduced some of these new typologies (Forum, Concourse) and highlights the growing role of collaboration in higher education.

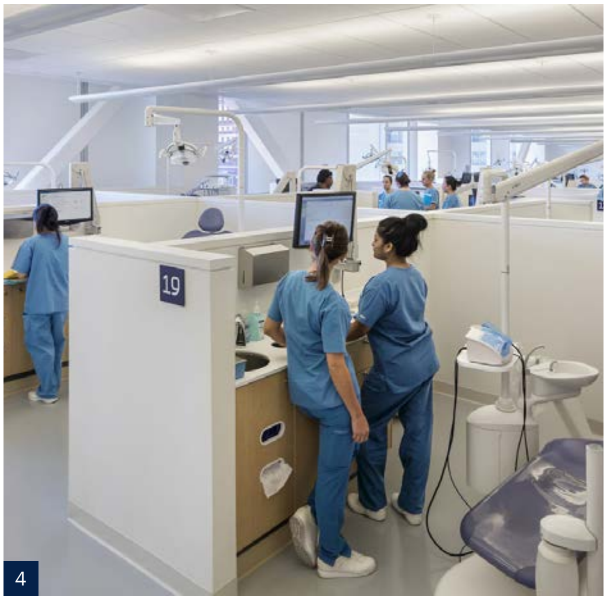
The promiximity between the clinical and education missions at Parnassus Heights is a unique opportunity for convergence. As a result, physical spaces should support the formal and informal gathering of various user groups to foster creativity, multi-disciplinary teams, and applied learning.

Applied Learning: Building upon recent investments in class labs and applied learning (such as the 13th floor of the Medical Sciences building, the Makers' Space in the Library, or the Anatomy Learning Center), future education spaces on campus should convey contemporary learning and discovery approaches through simulation spaces, Artificial Intelligence labs and clinical skills.

Partnerships: Parnassus Heights can be a fertile environment for industry and community partnerships. Such collaborations can be manifested in incubator spaces, less formal meeting areas, or programmatic approaches such as the Osher Mini Medical Center for the Public and lunch time lectures.

Healthy Buildings: Designing for performance means designing for the human body to improve attentiveness, task-focus, memory retention, and stamina. The concept of biophilia ("love of nature") is illustrated through ample sunlight into classroom and social spaces, landscape views, natural materials and textures, and excellent air quality. Additionally, selected spaces on campus can emphasize wellness and provide respite via various forms of recharge, nourishment, and quiet contemplation.





1. Adaptable furniture
2. Flexible simulation spaces
3. Technology in flexible classroom
4. Academic units in clinical spaces

8.2 BEST PRACTICES

Appropriate Adjacencies: The future Parnassus Heights campus should optimize adjacencies to allow research, education, and clinical care activities to have frequent and personal connections. For instance, simulations spaces and applied learning areas should be located as close as possible to, or embedded into, the new hospital.

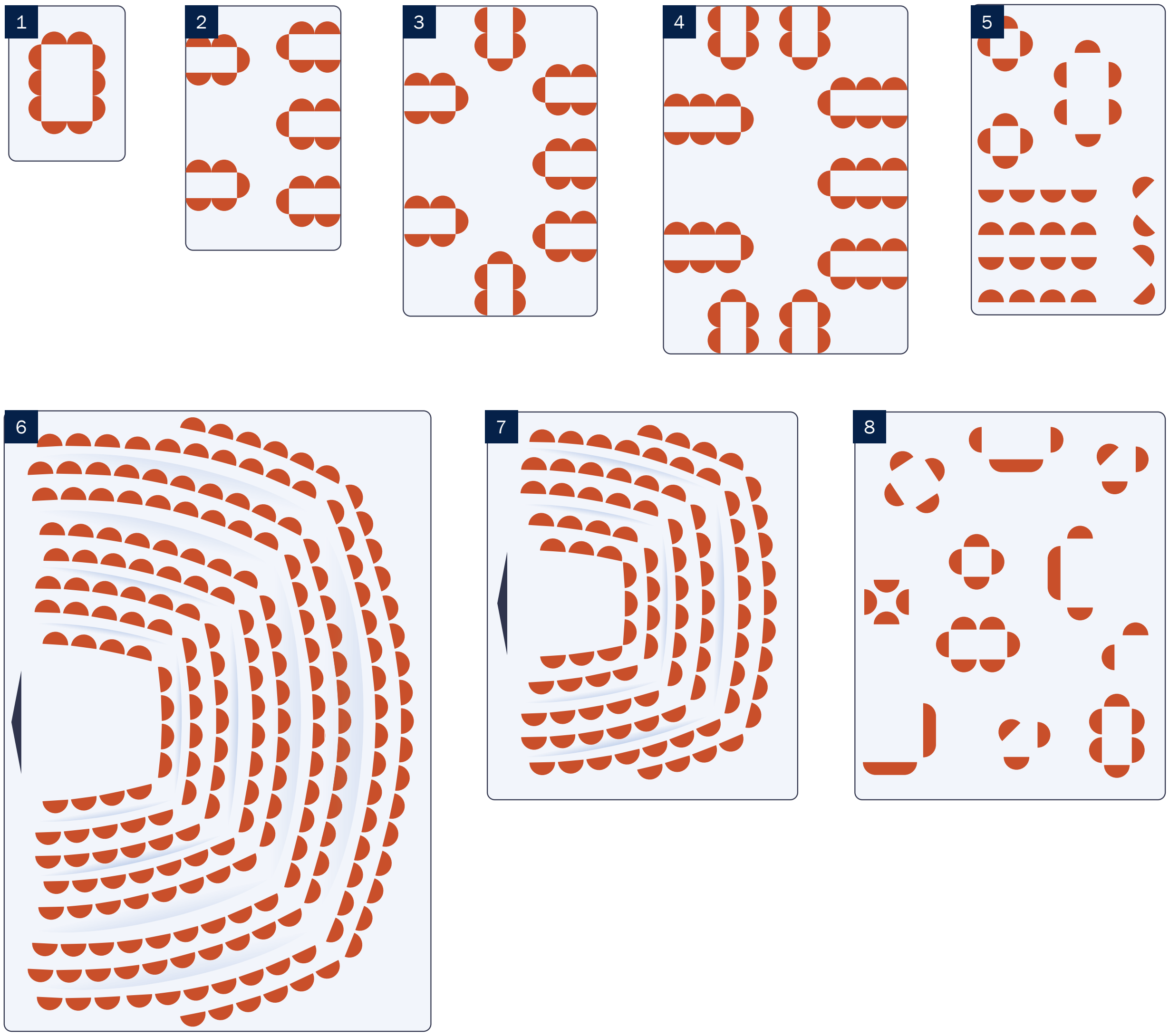
The new hospital building and associated educational spaces should accomodate designated areas for faculty members to meet with clinicians, students, and trainees to open up new research opportunities.

User-friendly Technology: Learning processes and spaces have been transformed by technology, but they do not need to be driven by it. Energy efficiency, AV/IT seamless setups, and infrastructure systems in buildings should support classroom flexibility and unconstrained reconfiguration as much as possible. Technological investments should be focused on robust wireless platforms and software platforms that work on the widest array of devices.

Access to video streaming can foster contemporary teaching approaches. For example, they allow students and trainees to monitor and learn from live surgeries, telemedicine consultations, and other doctor-patient interactions like recorded mock patient encounters.

	Seats	ASF/seat	Total (ASF)	Floor
Seminar	8-12	25	300	Flat
Small Active Learning	13-24	30	720	Flat
Medium Active Learning	25-36	30	1,080	Flat
Large Active Learning	37-55	30	1,650	Flat
Small Lecture Hall	56-99	22	2,178	Tiered
Large Lecture Hall	100-200	22	4,400	Tiered
Student Study + Lounge	1,700	1:7 seat/FTE	1,000	Flat

8.32. Space attributes per classroom type.



1. Seminar
2. Small Active Learning
3. Medium Active Learning
4. Large Active Learning
5. Student study and lounge
6. Large Lecture Hall
7. Small Lecture Hall
8. Informal collaboration

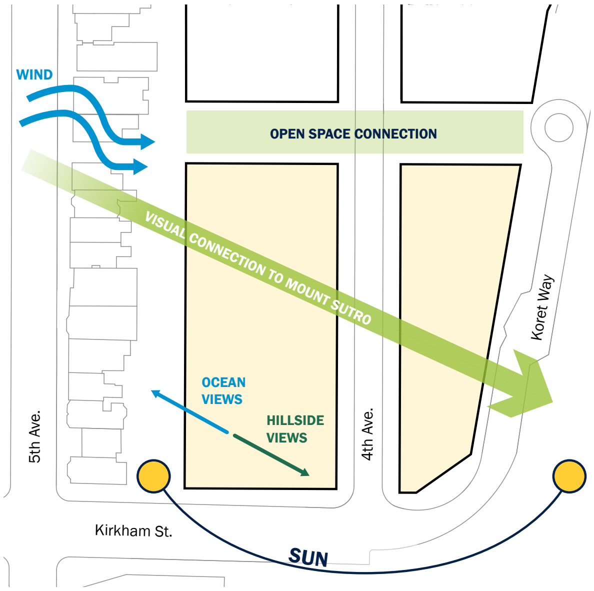
8.33. Prototypical classroom space types.

Residential Space

The West Side district may include future residential development. As feasible UCSF should apply best practice approaches in residential design to integrate housing with the neighborhood.

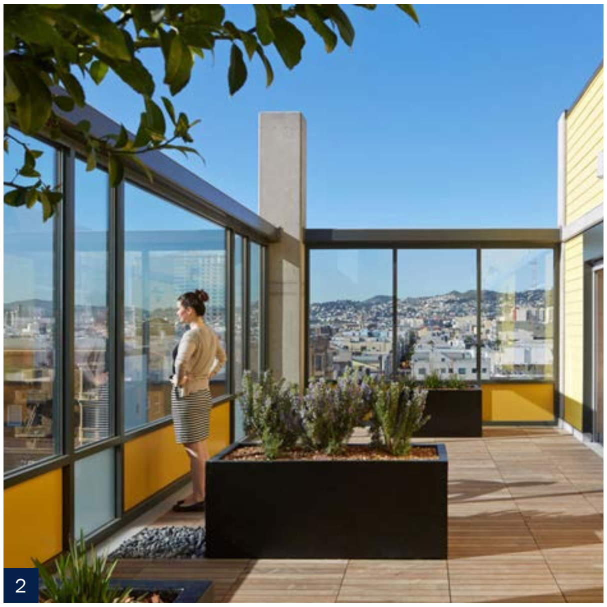
The West Side Residential Building and Planning Principles are:

- Incorporate social spaces in residential buildings to create active ground floors and outdoor spaces.
- Provide accessible space for community facing amenities (i.e. markets, food retail, services).
- Consider the scale and solar access along 4th Avenue for comfortable residential street experience.
- Provide for adequate solar access and daylighting to housing units, interiors, and outdoor spaces.
- Create strategic vistas through the West Side to Mount Sutro from the surrounding community, informing building bulk, height, and scale.
- Maximize views to the hillside and the ocean from housing units.
- Orient buildings to shield from the prevailing winds, and create sheltered outdoor spaces.



8.34. Transitioning from the neighborhood to the hillside should inform massing, optimizing for views, light, and wind mitigation.

1



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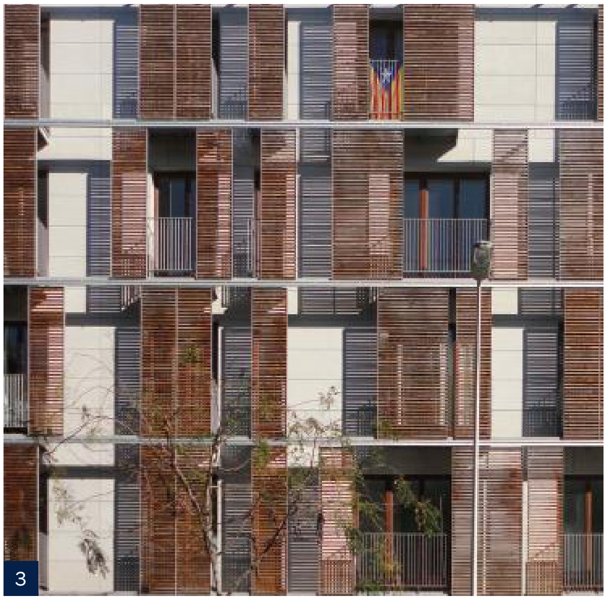


3

4

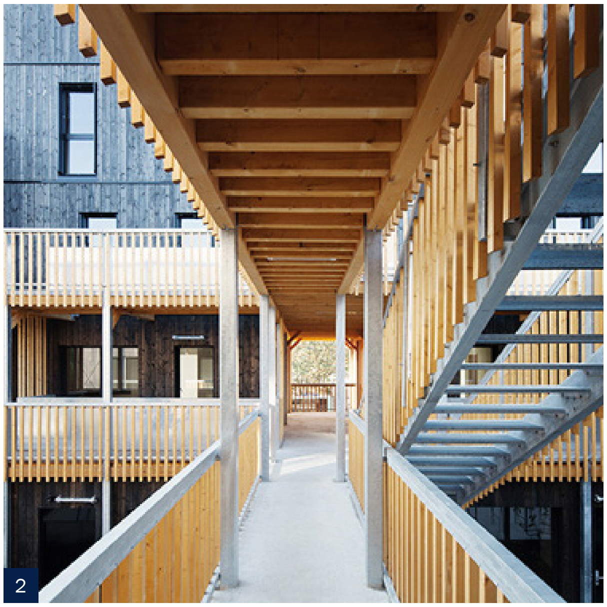
1. Pedestrian passages
2. Maximized views
3. Sun and wind mitigation strategy
4. Green roofs

8.2 BEST PRACTICES

Aldea Housing Community

Redevelopment at the Aldea housing community is an opportunity to reinforce its connection with Mount Sutro. Recent trends in sustainable design help inform design opportunities.

- Thoughtfully incorporate views to maximize connectivity to nature while preserving residents' privacy.
- Respect existing wooded setting and open space areas, refrain from impacting the extent of the Mount Sutro Open Space Reserve.
- Consider impact on Clarendon and Behr Avenues if changing the building siting or scale; preserve public view corridors and street scale as feasible.
- Foster a harmonious integration of housing through landscaping.
- Reinforce pedestrian connections between apartment structures.
- Establish discrete facade treatments and a design language that embraces the context.
- Prioritize the use of natural materials for building design, and promote efficiency through sustainable building systems.



1. Aldea today
2. Visible pedestrian connections
3. Textured facades
4. Terraces and balconies

APPENDICES

APPENDICES

A. ACKNOWLEDGMENTS

PARNASSUS MASTER PLAN STEERING COMMITTEE

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A CPHP ACKNOWLEDGMENTS

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B WORKING GROUP REPORTS

B. WORKING GROUP REPORTS

RESEARCH SPACE WORKING GROUP REPORT

For the full report with appendices, please see: *https://space.ucsf.edu/sites/g/files/tkssra416/f/wysiwyg/CPHP_Research_Space_Working_Group_Report.pdf*

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

February 15, 2019

Dear Senior Vice Chancellor Jenny and Executive Vice Chancellor Lowenstein:

Thank you for the opportunity to serve on the Research Space Working Group (RSWG) for UCSF-Parnassus Heights (PH). We have greatly enjoyed working together to evaluate UCSF-PH research programs and the research space infrastructure that supports them. We provide the attached report in the form of a combined pdf that includes the slides we presented to CPHP in December and additional supporting information. The supporting information includes an executive summary, background information about the RSWG, research programs and buildings at PH, and detailed information about current and proposed research programs at PH, including a mechanism to solicit input and communicate with these programs as decisions about research space at PH proceed.

You will see that the main pressing recommendation in our RSWG report is the immediate construction of Parnassus Discovery Hall and the Center for Innovative Medicine. The RSWG believes that it is critical that the construction of these research buildings begin immediately so that they are completed before construction of the new Diller hospital starts in 2023. In this way, the transformation of the PH research space can occur within a timeline that quickly transforms the current research space infrastructure while allowing the UCSF-PH research enterprise to retain and recruit world class faculty and staff.

We are aware that new construction for research buildings at PH brings many challenges, but we believe that presenting you with a bold vision for transformative change is a key step on the journey toward meeting these challenges and delivering a rejuvenated UCSF-PH campus. We envision an integrated campus at UCSF-PH comprising world class biomedical research, cutting edge patient care, and the highest standard education programs in life sciences and health professions. We think this vision will appeal to our community neighbors and resonate with our university's friends and donors.

Please let us know how we can help further. We are energized by the process of bringing you this plan and we stand ready to help you implement it.

Sincerely,

Tamara Alliston, PhD
John Fahy, MD, MSc
Robert Blelloch, MD, PhD

Jason Cyster, PhD
Maria Dall'E
Maria Dall'Era, MD
Carol Dawson-Rose, RN, PhD, FAAN

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Art Weiss, MD, PhD

Research Space Working Group

FINAL REPORT

Dated: February 15, 2019

Table of Contents

I. Research Space Working Group (RSWG) - Executive Summary

Overview

The RSWG is a working group of the Comprehensive Parnassus Heights Plan (CPHP) that was charged to develop guiding principles for research space at PH. The RSWG has broad representation from UCSF schools and departments and from basic and clinical research faculty and staff.

Through an assessment of UCSF-PH research programs and infrastructure, the RSWG finds that UCSF-PH is home to numerous world-class research programs that are outstanding across the spectrum from basic and quantitative biomedical research to translational and clinical research. In contrast, the current research space infrastructure is weak. The lack of investment in the UCSF-PH research space infrastructure threatens the competitiveness and viability of PH-based research.

Following a data-driven process using standard benchmarks for research space and growth, the RSWG provides an urgent call for the rejuvenation of the PH research infrastructure with the construction of new and renovated research buildings that will transform and prepare the PH campus and UCSF for its bold future.

Recommendations

Recommendation 1: Immediately expand and transform the PH research campus to meet the urgent needs of current and future research programs. Plan for an increase in research space from current 550,000 ASF to 875,000 ASF. A two-phase approach to construction of research infrastructure is recommended:

Phase 1 (Immediate, near term):

(i) Construct *Parnassus Discovery Hall*: a new 150,000 ASF building for research to accommodate growth of existing programs and development of new programs.

(ii) Construct a *Center for Innovative Medicine:* a 75,000 ASF clinical research building to provide currently missing clinical research infrastructure.

(iii) Renovate the main research buildings (HSIR East and West, Medical Sciences).

The RSWG believes that it is critical that the construction of Parnassus Discovery Hall and of the Center for Innovative Medicine begin immediately so that these buildings are completed before construction of the new Diller hospital starts. In this way, the transformation of the PH research space environment can occur within a timeline that quickly transforms the current research space infrastructure while allowing the UCSF-PH research enterprise to retain and recruit world-class faculty and staff.

Phase 2 (Medium term):
Build 100,000 ASF of additional research space to meet the ongoing needs of strong and emerging research programs.

Recommendation 2: Create space conditions that rejuvenate the existing strong PH research programs while fostering growth of new programs.

Recommendation 3: Create inspiring research space with adjacencies and design elements that spur connectivity, community, innovation, and celebration

Recommendation 4: Assign space using transparent and inclusive mechanisms.

II. RSWG Report

UCSF
University of California
San Francisco

Research Space Working Group (RSWG)

PMP Steering Committee Meeting

Co Chairs
Tamara Alliston
John Fahy

Committee
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Jason Cyster
Andrei Goga
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Janel Long-Boyle
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Joy Glasier
Maryam Farshad

Research Space Working Group Charge

- **Research Space Working Group (RSWG)**: A representative committee reporting to campus leadership as part of the Comprehensive Parnassus Heights Plan project.
- **RSWG Charge**: To develop guiding principles for research space at Parnassus Heights.

How much research space does PH need?

What kind of research space does PH need?

Before we start...
PH research space planning in a 2018 context

- Development of the UCSF-MB campus nearing completion.
- Relative neglect of the UCSF-PH campus threatening its viability as a world class research campus.
- Groundswell of support from faculty and leadership to rejuvenate the PH campus.
- $500MM Diller gift for a new PH hospital.
- Comprehensive Parnassus Heights Plan (CPHP) - possibility for PH to be “re-born.”

RSWG - PMP Steering Committee Meeting

UCSF Helen Diller Medical Center at PH

Mark Laret

“The new hospital … will be embedded within a campus that includes leading clinicians & scientists focused on translating discoveries into treatments & cures for conditions ranging from diabetes to neurological diseases to organ failure.”

UCSF Helen Diller Medical Center at PH

RSWG

Recognition of the unique opportunity to create an integrated campus at UCSF-PH comprising cutting edge patient care, world class biomedical research, & highest standard education programs in life sciences & health professions.

RSWG - PMP Steering Committee Meeting

UCSF Mission

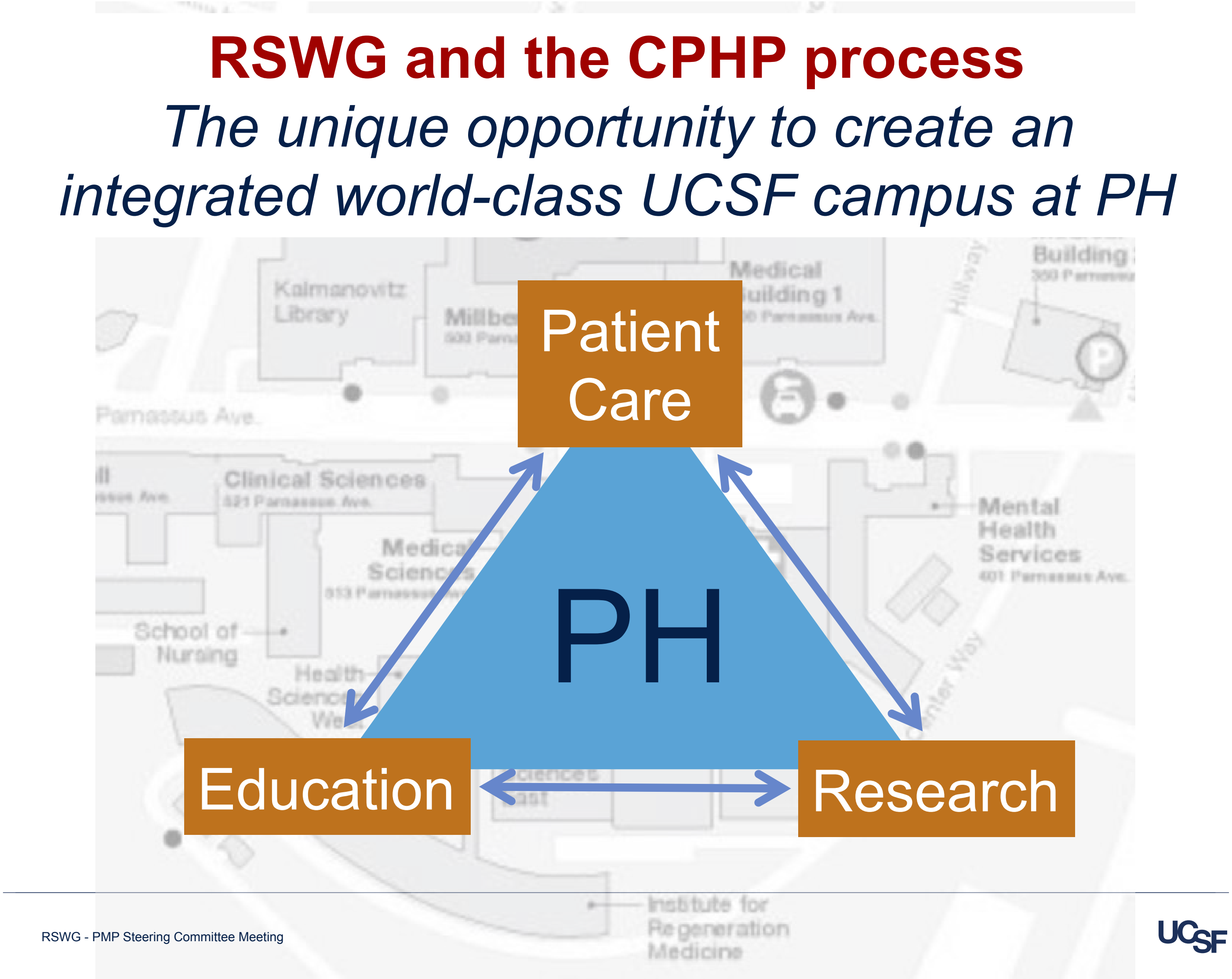
Advance health worldwide through ..

preeminent biomedical **research**

graduate-level **education** in the life sciences and health professions

and excellence in **patient care**.

RSWG - PMP Steering Committee Meeting



RSWG and the CPHP process

The unique opportunity to create an integrated world-class UCSF campus at PH

Patient Care

PH

Education

Research

RSWG - PMP Steering Committee Meeting

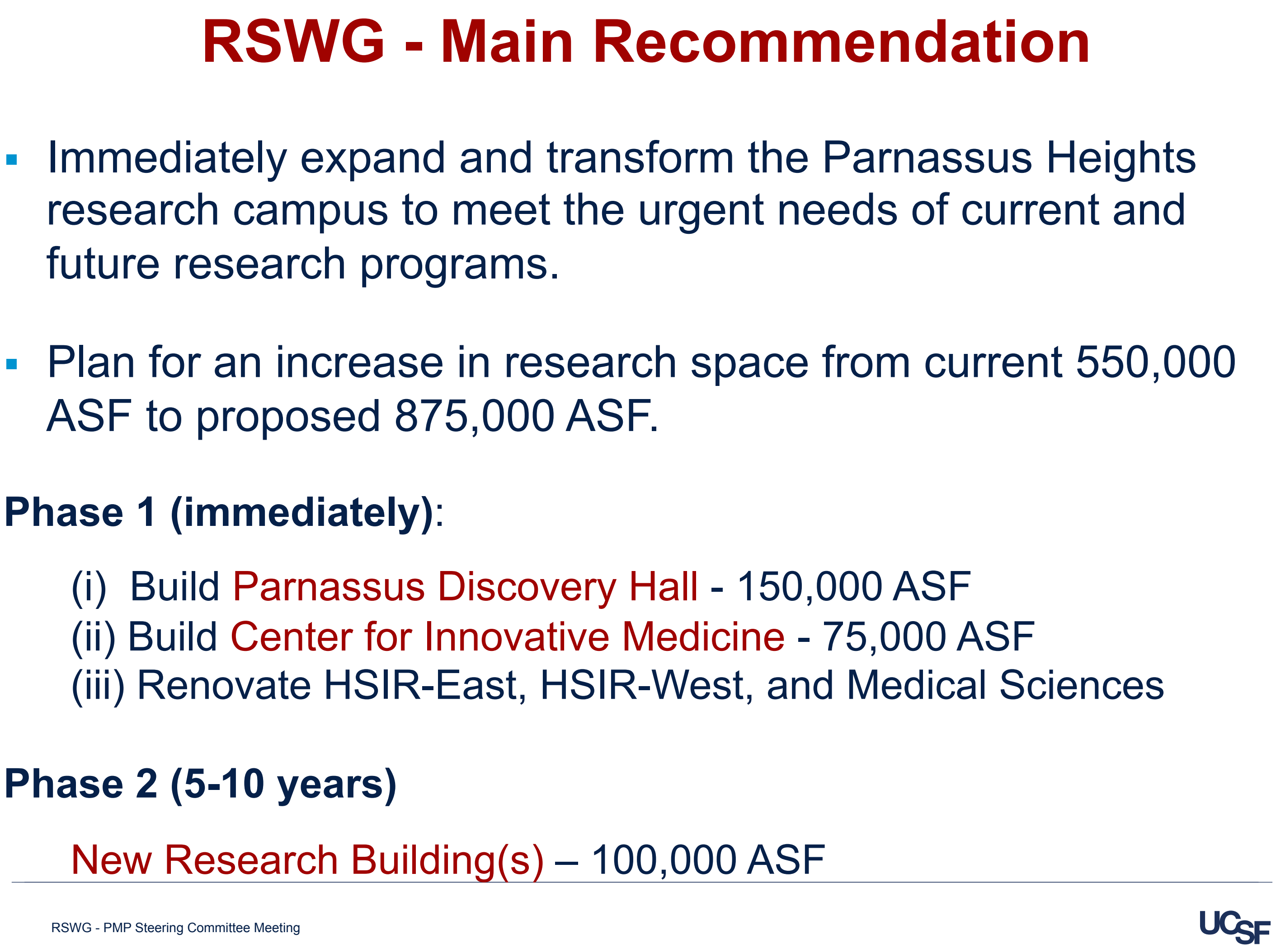
UCSF

Overview of RSWG Guiding Principles for the PH Research Enterprise

1. World-class biomedical research campus:
- A magnet science community
- Architecture and design that inspires innovation & discovery

2. Blend of research activities - basic, clinical, translational:
- Not dominated by any research category or program
- Each research activity represented by a critical mass of faculty

3. Research activities that are integrated with one another and:
- UCSF Helen Diller Medical Center
- UCSF education programs



RSWG - Main Recommendation

- Immediately expand and transform the Parnassus Heights research campus to meet the urgent needs of current and future research programs.
- Plan for an increase in research space from current 550,000 ASF to proposed 875,000 ASF.

Phase 1 (immediately):

(i) Build Parnassus Discovery Hall - 150,000 ASF
(ii) Build Center for Innovative Medicine - 75,000 ASF
(iii) Renovate HSIR-East, HSIR-West, and Medical Sciences

Phase 2 (5-10 years)

New Research Building(s) – 100,000 ASF

RSWG - PMP Steering Committee Meeting

Why should PH accommodate 875K of research space?

1. Overview of RSWG Process

2. Overview of Current PH Research Enterprise
   - Space
   - Investigators
   - Programs

3. Recommendations for space and other research needs

RSWG - Overview of Process

1. Meetings

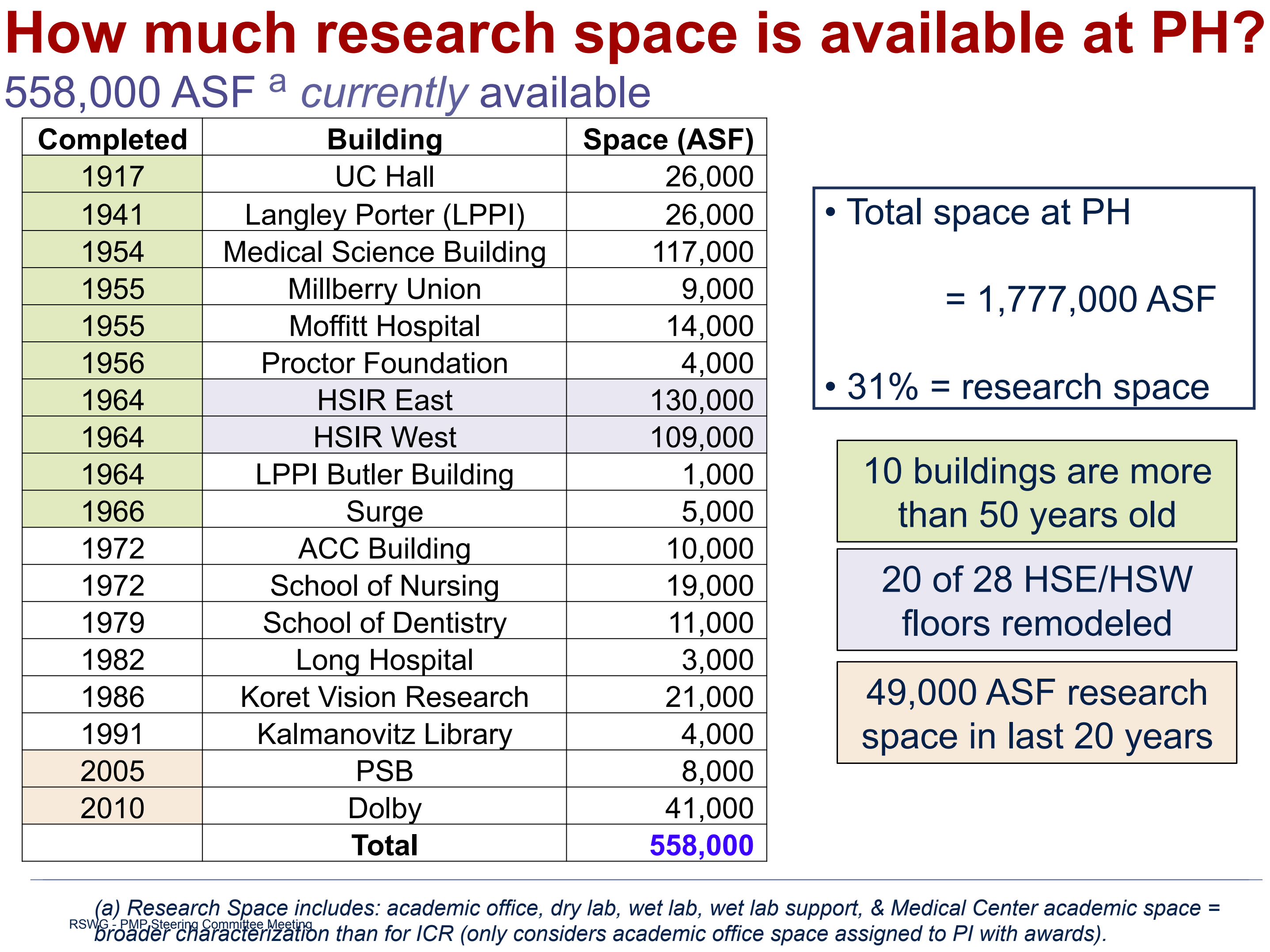
- RSWG: monthly, March – December 2018
- RSWG Executive Team: weekly, March – December 2018

2. Sources of Information

- Research survey - Vice Chancellor of Research - Spring 2018
- Research space data - Campus Planning, Space Management
- Research funding data – Budget and Resource Management
- National research space ‘benchmarks’ – Perkins Eastman, Jacobs
- Grassroots and leadership – Stakeholder outreach and meetings

RSWG - PMP Steering Committee Meeting

Overview of Current PH Research Enterprise – Research Space



How much research space is available at PH?

558,000 ASF [a] *currently* available

Completed	Building	Space (ASF)
1917	UC Hall	26,000
1941	Langley Porter (LPPI)	26,000
1954	Medical Science Building	117,000
1955	Millberry Union	9,000
1955	Moffitt Hospital	14,000
1956	Proctor Foundation	4,000
1964	HSIR East	130,000
1964	HSIR West	109,000
1964	LPPI Butler Building	1,000
1966	Surge	5,000
1972	ACC Building	10,000
1972	School of Nursing	19,000
1979	School of Dentistry	11,000
1982	Long Hospital	3,000
1986	Koret Vision Research	21,000
1991	Kalmanovitz Library	4,000
2005	PSB	8,000
2010	Dolby	41,000
	Total	**558,000**

- Total space at PH

  = 1,777,000 ASF

- 31% = research space

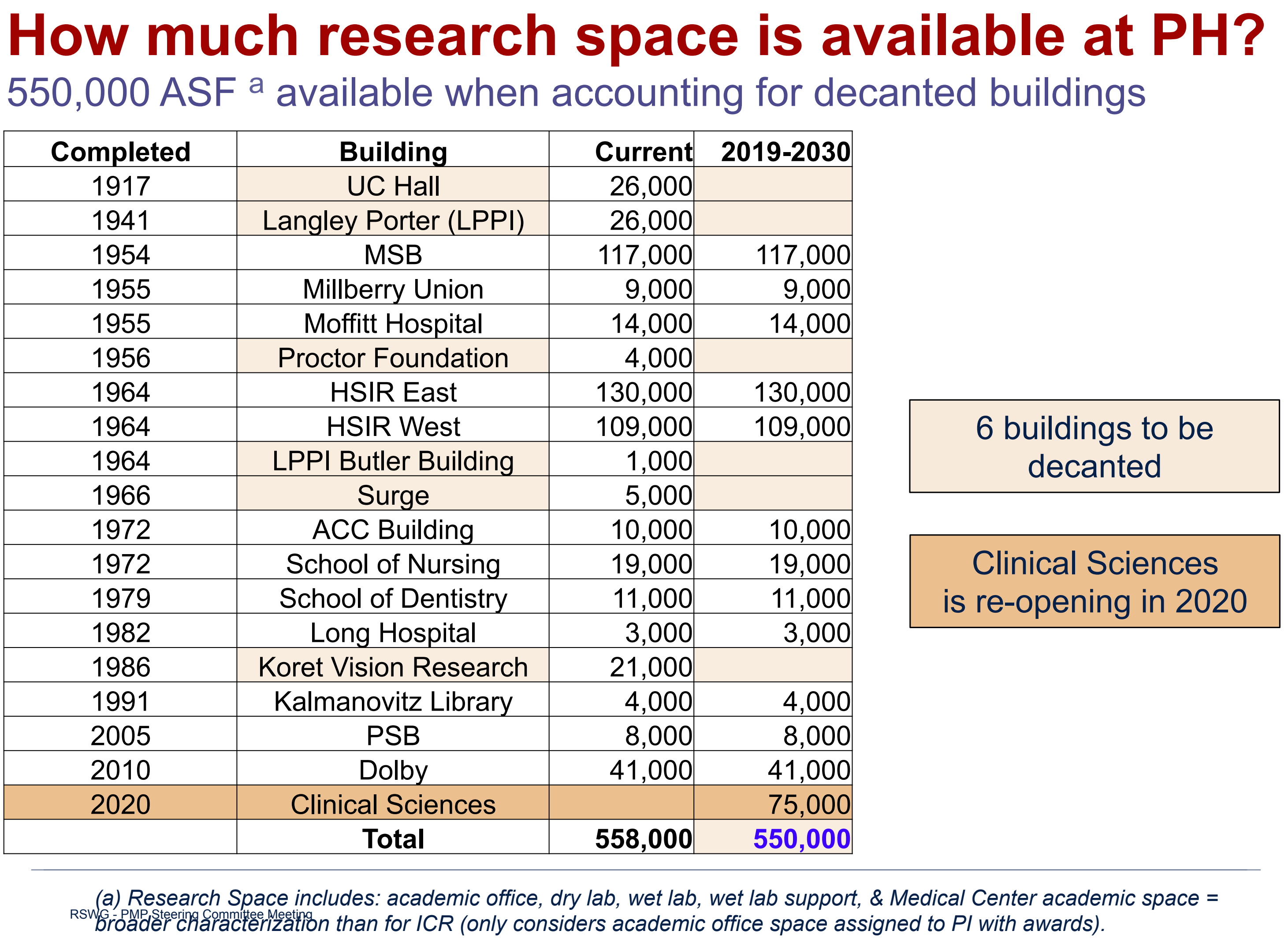
10 buildings are more than 50 years old

20 of 28 HSE/HSW floors remodeled

49,000 ASF research space in last 20 years

(a) Research Space includes: academic office, dry lab, wet lab, wet lab support, & Medical Center academic space = broader characterization than for ICR (only considers academic office space assigned to PI with awards).

RSWG - PMP Steering Committee Meeting



How much research space is available at PH?

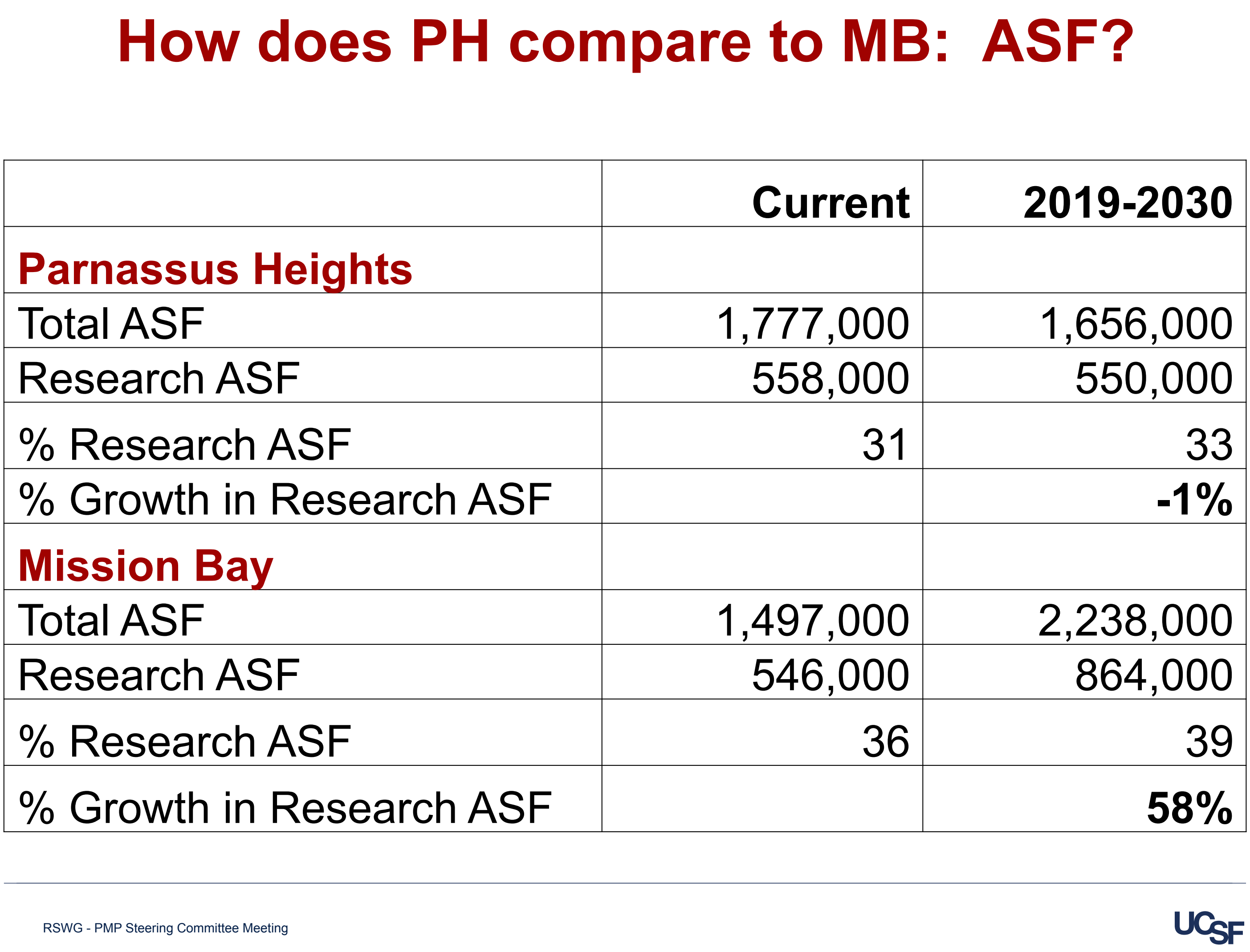
550,000 ASF [a] available when accounting for decanted buildings

Completed	Building	Current	2019-2030
1917	UC Hall	26,000	
1941	Langley Porter (LPPI)	26,000	
1954	MSB	117,000	117,000
1955	Millberry Union	9,000	9,000
1955	Moffitt Hospital	14,000	14,000
1956	Proctor Foundation	4,000	
1964	HSIR East	130,000	130,000
1964	HSIR West	109,000	109,000
1964	LPPI Butler Building	1,000	
1966	Surge	5,000	
1972	ACC Building	10,000	10,000
1972	School of Nursing	19,000	19,000
1979	School of Dentistry	11,000	11,000
1982	Long Hospital	3,000	3,000
1986	Koret Vision Research	21,000	
1991	Kalmanovitz Library	4,000	4,000
2005	PSB	8,000	8,000
2010	Dolby	41,000	41,000
2020	Clinical Sciences		75,000
	Total	**558,000**	**550,000**

6 buildings to be decanted

Clinical Sciences is re-opening in 2020

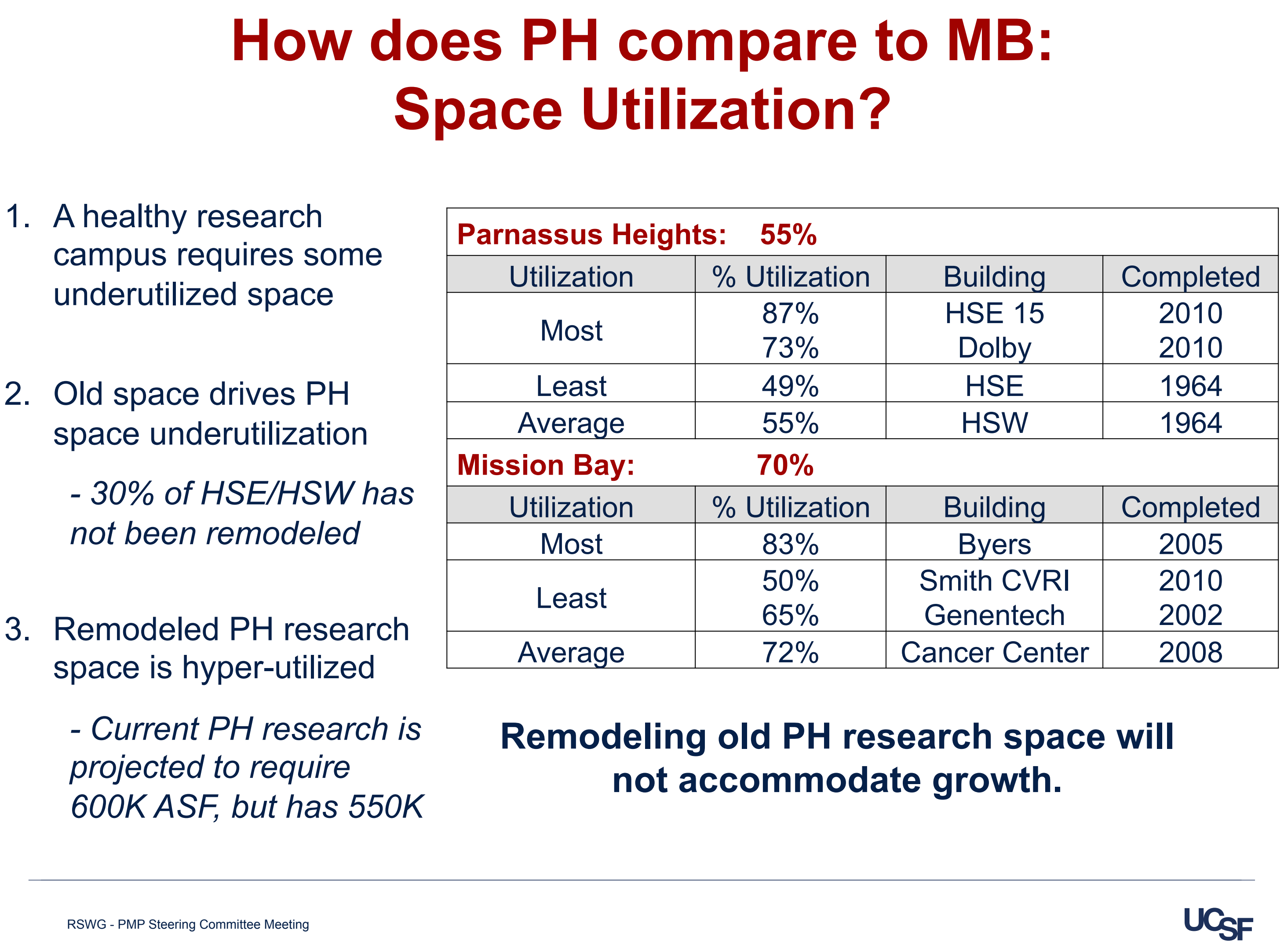
(a) Research Space includes: academic office, dry lab, wet lab, wet lab support, & Medical Center academic space = broader characterization than for ICR (only considers academic office space assigned to PI with awards).



How does PH compare to MB: ASF?

	Current	2019-2030
Parnassus Heights		
Total ASF	1,777,000	1,656,000
Research ASF	558,000	550,000
% Research ASF	31	33
% Growth in Research ASF		**-1%**
Mission Bay		
Total ASF	1,497,000	2,238,000
Research ASF	546,000	864,000
% Research ASF	36	39
% Growth in Research ASF		**58%**

RSWG - PMP Steering Committee Meeting



How does PH compare to MB: Space Utilization?

1. A healthy research campus requires some underutilized space
2. Old space drives PH space underutilization

   - 30% of HSE/HSW has not been remodeled
3. Remodeled PH research space is hyper-utilized

   - Current PH research is projected to require 600K ASF, but has 550K

Parnassus Heights:	**55%**		
Utilization	% Utilization	Building	Completed
Most	87% 73%	HSE 15 Dolby	2010 2010
Least	49%	HSE	1964
Average	55%	HSW	1964
Mission Bay:	**70%**		
Utilization	% Utilization	Building	Completed
Most	83%	Byers	2005
Least	50% 65%	Smith CVRI Genentech	2010 2002
Average	72%	Cancer Center	2008

Remodeling old PH research space will not accommodate growth.

Overview of Current PH Research Enterprise – Investigators and Programs

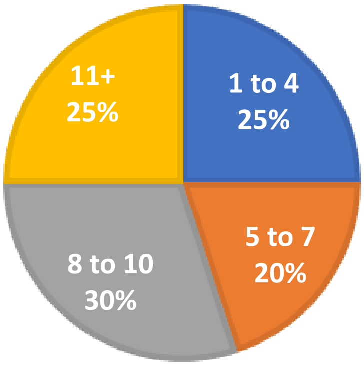
RSWG - PMP Steering Committee Meeting

UCSF

Current PH Research Enterprise
PH Investigators

- Number of PH PIs[a]: 427 PIs (40% of UCSF PIs)
- Academic research benchmarks suggest even faculty rank distribution
- 55% Senior Faculty: Full Professors are overrepresented at PH
- 23% Junior Faculty: 1/3 fewer Assistant Professors at PH than MB
- PH Group Size: 25% small, 50% medium, 25% large research groups

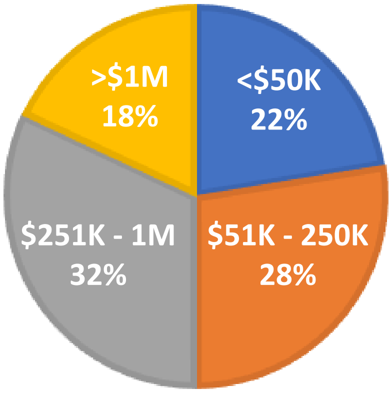
(a) PI: all PI's of Sponsored Research Projects.



Researchers per PH PI

Current PH Research Enterprise
PH Investigators – Robust Funding

- Funding: $309 MM in annual research funding (direct & indirect, 2016)
- PH ICR/ASF is 14% lower than MB:
  - PH ICR/ASF: $153
  - MB ICR/ASF: $177
- Modern space design affords a 15% efficiency
- Suggests that PH ICR/ASF is on par with MB



Direct Costs per PH PI

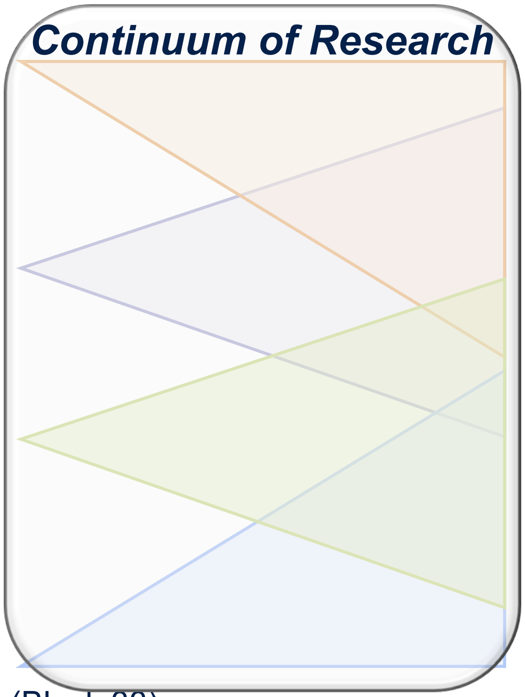
RSWG - PMP Steering Committee Meeting

Current PH Research Enterprise
Types of Research and Research Space

Types of Research

(*2018 Research Survey data)

1. Basic (40%)
2. Translational (21%)
3. Clinical (27%)
4. Population (12%)
   - -Many PIs moving to MB (Block 33)
   - -Staying at PH: Tobacco Center, SOD, some SON

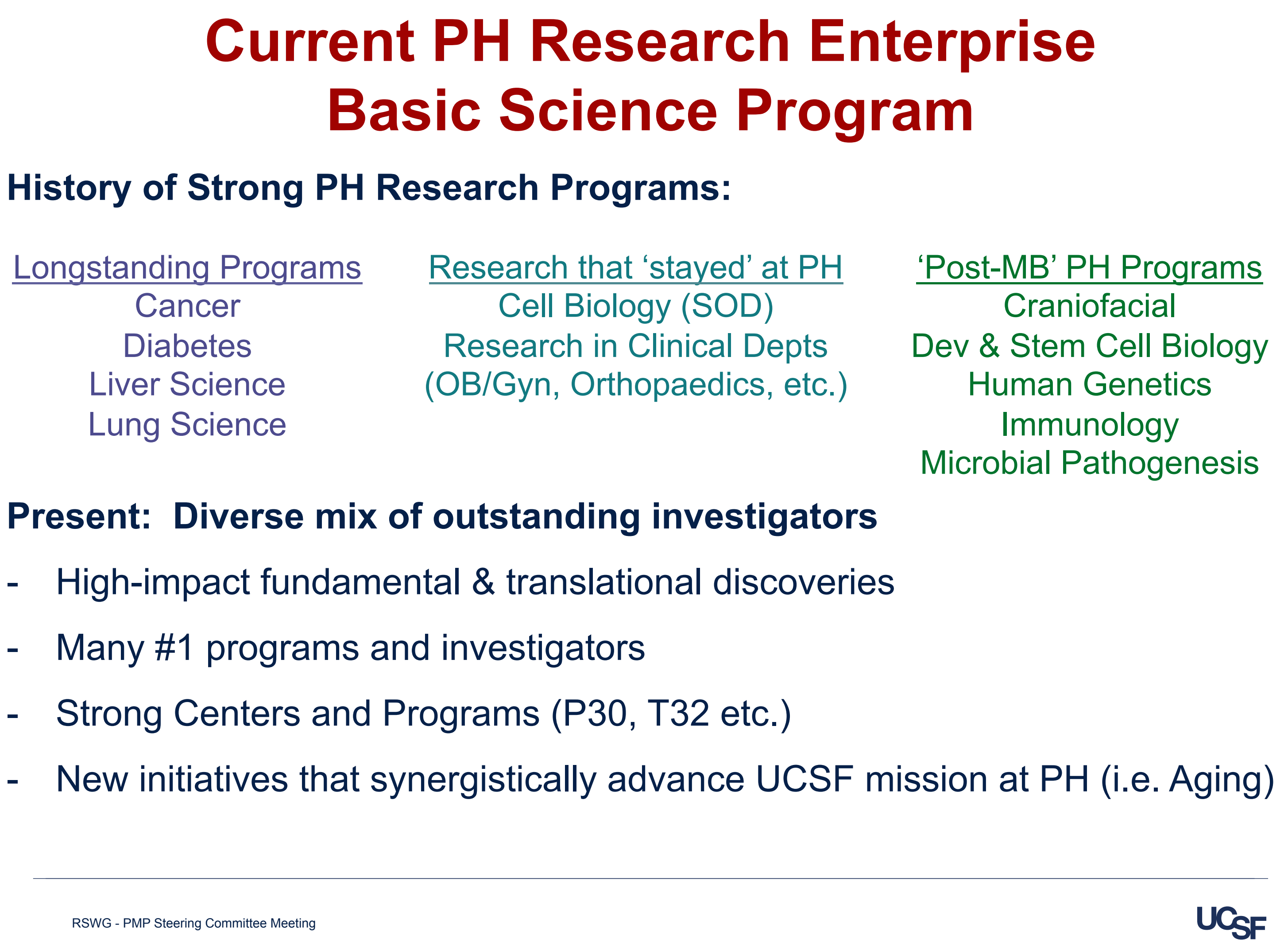


Precision Medicine

Continuum of Research

Types of Research Space

	ASF/Researcher
1. Bench/Wet	200
Hybrid	150
2. Computational	100
Hybrid	150
3. Patient Facing	225
4. Hospital & Clinics	
5. Community	



Current PH Research Enterprise
Basic Science Program

History of Strong PH Research Programs:

Longstanding Programs
Cancer
Diabetes
Liver Science
Lung Science

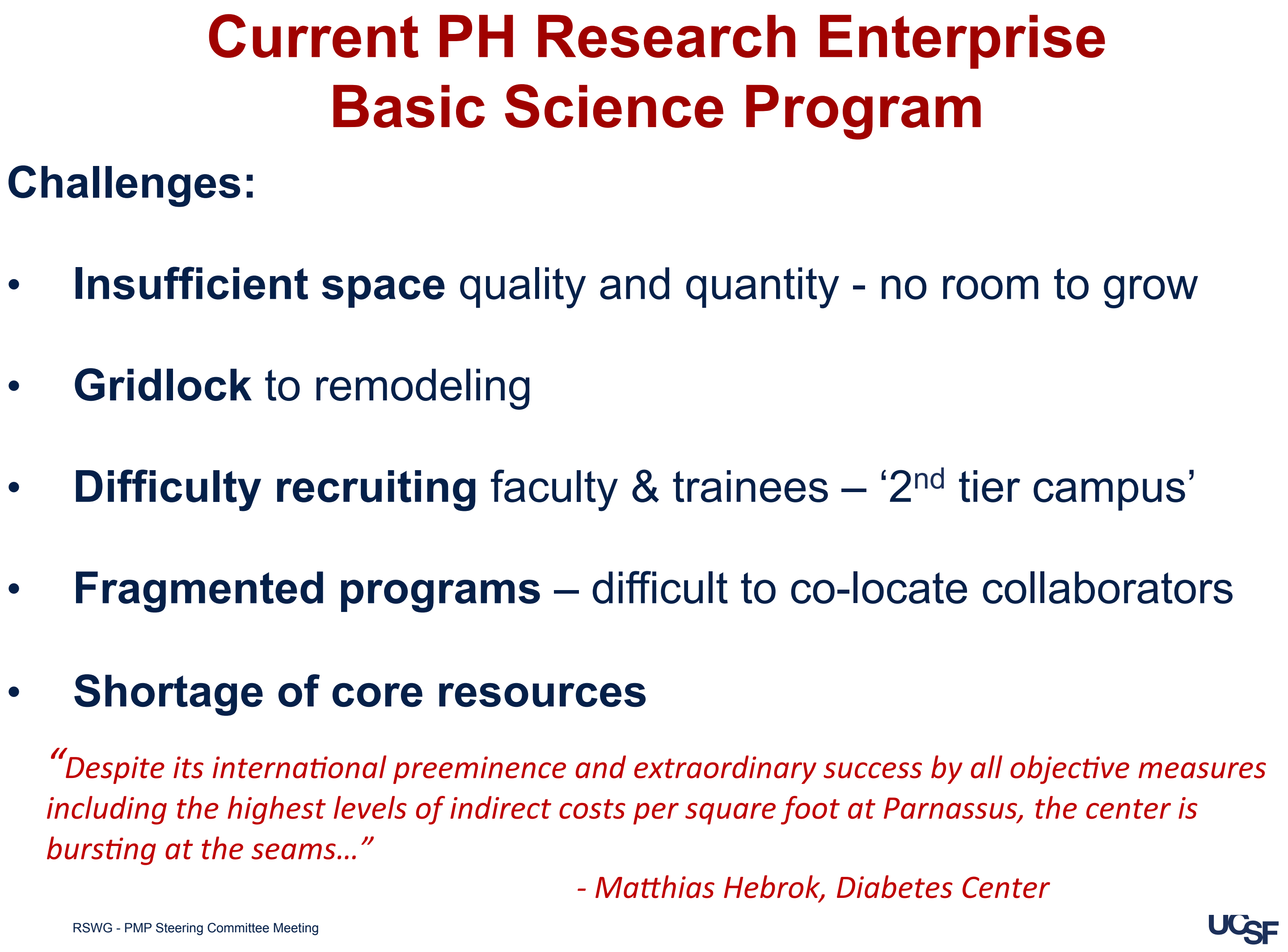
Research that 'stayed' at PH
Cell Biology (SOD)
Research in Clinical Depts
(OB/Gyn, Orthopaedics, etc.)

'Post-MB' PH Programs
Craniofacial
Dev & Stem Cell Biology
Human Genetics
Immunology
Microbial Pathogenesis

Present: Diverse mix of outstanding investigators

- High-impact fundamental & translational discoveries
- Many #1 programs and investigators
- Strong Centers and Programs (P30, T32 etc.)
- New initiatives that synergistically advance UCSF mission at PH (i.e. Aging)

RSWG - PMP Steering Committee Meeting



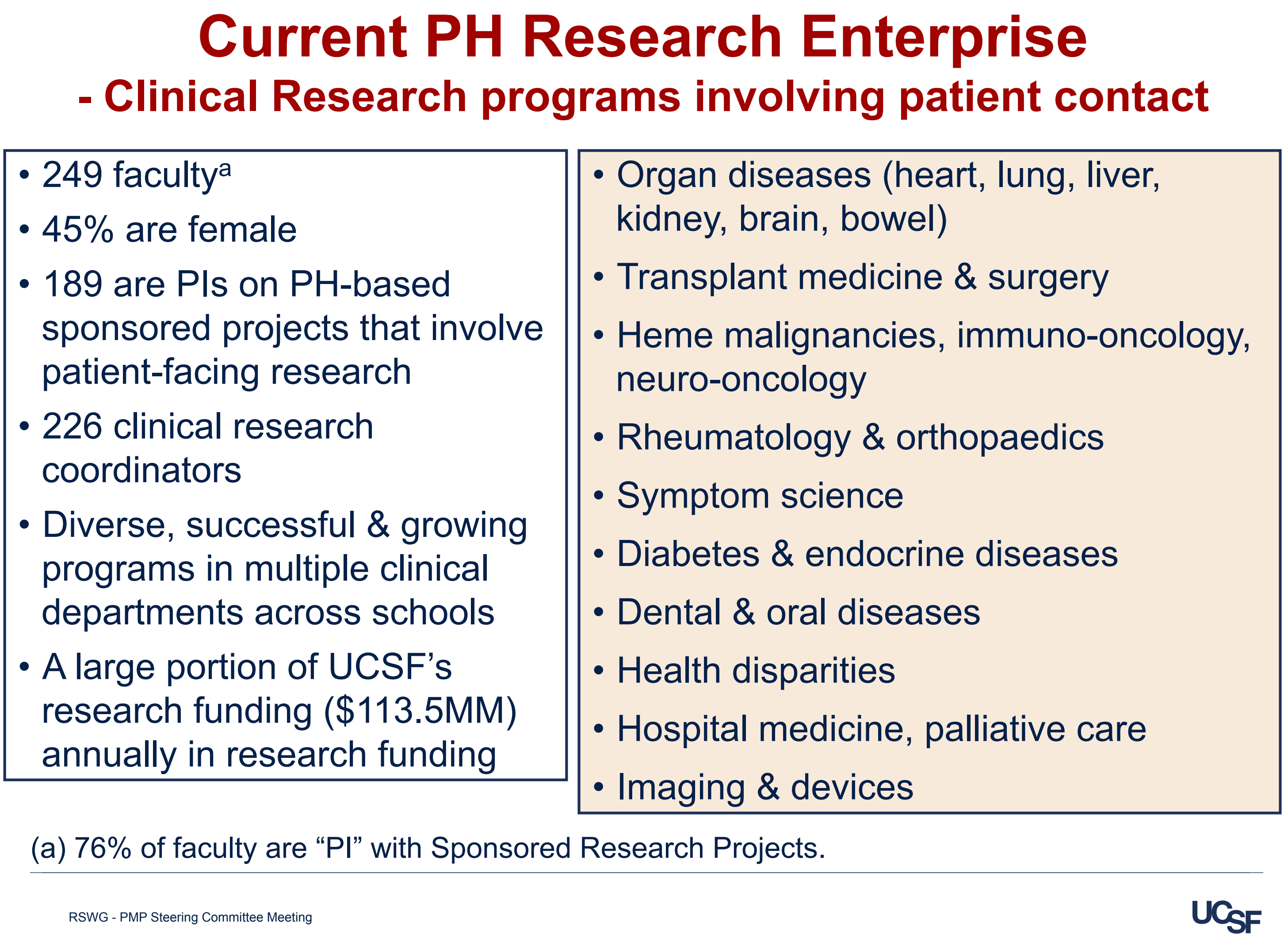
Current PH Research Enterprise
Basic Science Program

Challenges:

- **Insufficient space** quality and quantity - no room to grow
- **Gridlock** to remodeling
- **Difficulty recruiting** faculty & trainees – ‘2nd tier campus’
- **Fragmented programs** – difficult to co-locate collaborators
- **Shortage of core resources**

“Despite its international preeminence and extraordinary success by all objective measures including the highest levels of indirect costs per square foot at Parnassus, the center is bursting at the seams…”

- Matthias Hebrok, Diabetes Center



Current PH Research Enterprise

- Clinical Research programs involving patient contact

- 249 faculty[a]
- 45% are female
- 189 are PIs on PH-based sponsored projects that involve patient-facing research
- 226 clinical research coordinators
- Diverse, successful & growing programs in multiple clinical departments across schools
- A large portion of UCSF's research funding ($113.5MM) annually in research funding

- Organ diseases (heart, lung, liver, kidney, brain, bowel)
- Transplant medicine & surgery
- Heme malignancies, immuno-oncology, neuro-oncology
- Rheumatology & orthopaedics
- Symptom science
- Diabetes & endocrine diseases
- Dental & oral diseases
- Health disparities
- Hospital medicine, palliative care
- Imaging & devices

(a) 76% of faculty are "PI" with Sponsored Research Projects.

RSWG - PMP Steering Committee Meeting

Current PH Research Enterprise Clinical Science Programs - Challenges

1. History of **poor advocacy** to generate research resources from campus leadership.

2. Lack of **properly designed space** for research involving patient cohorts, clinical trials and mechanism-oriented clinical research in human subjects.

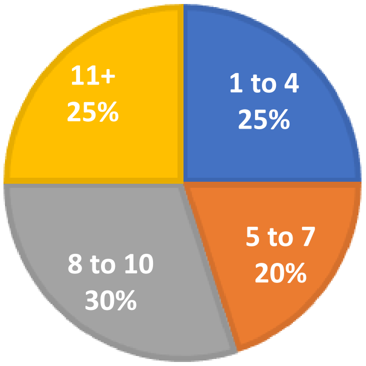
3. Lack of **designated research space** in patient care areas of the hospitals and clinics.

4. Suboptimal **interactions and collaborations** with UCSF Health.

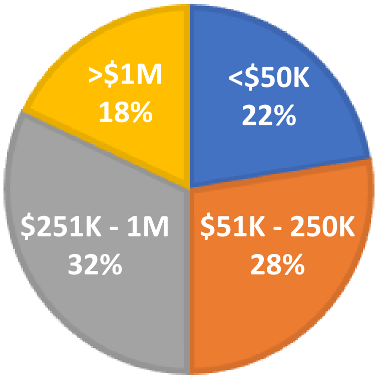
How much research space is needed to properly support current and future basic, clinical, and translational research at PH?

How much research space is needed at PH?

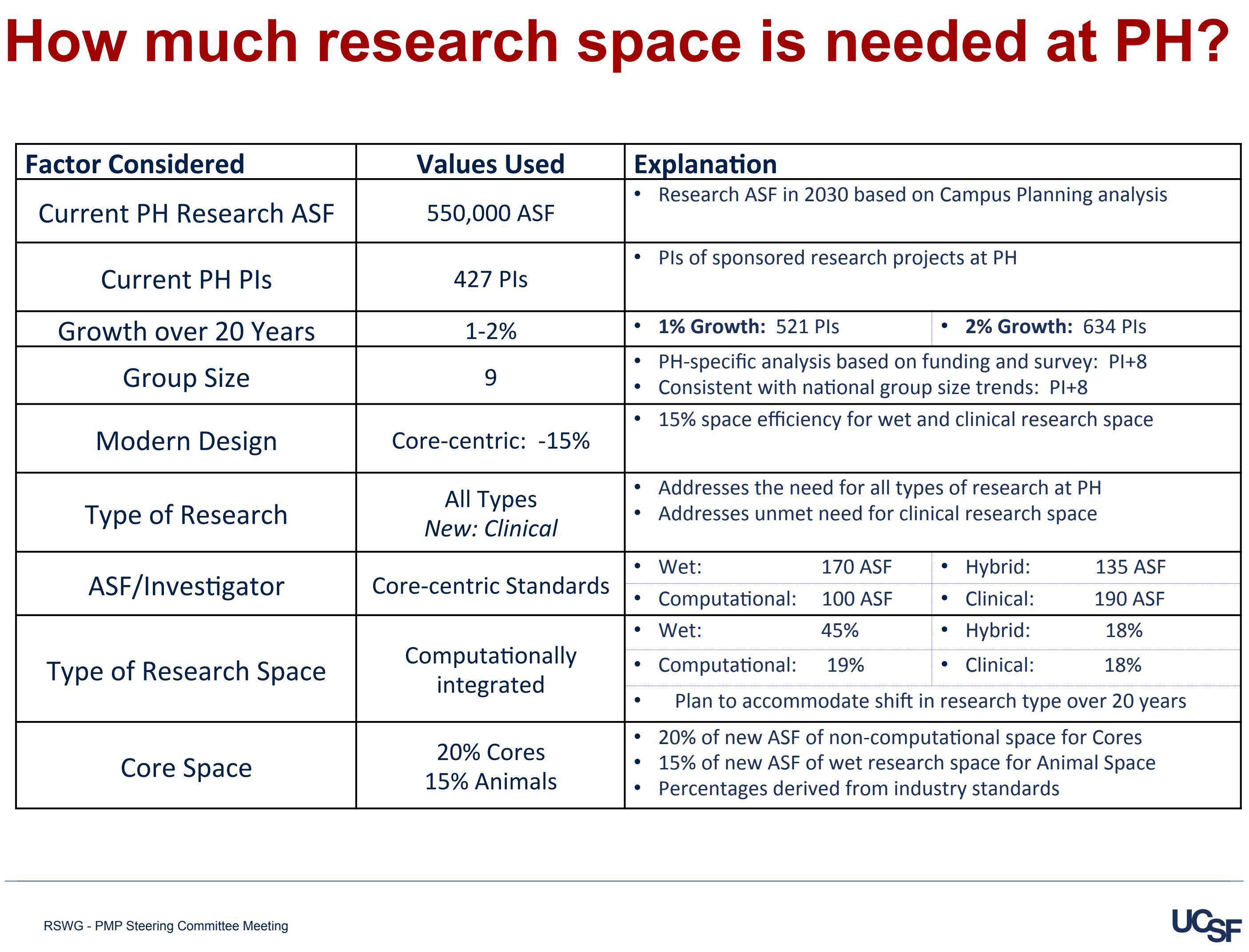
Factor Considered	**Values Used**	**Explanation**
Current PH Research ASF	550,000 ASF	• Research ASF in 2030 based on Campus Planning analysis
Current PH PIs	427 PIs	• PIs of sponsored research projects at PH
Growth over 20 Years	1-2%	• **1% Growth:** 521 PIs • **2% Growth:** 634 PIs
Group Size	9	• PH-specific analysis based on funding and survey: PI+8 • Consistent with national group size trends: PI+8



Researchers per PH PI



Direct Costs per PH PI



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Growth over 20 Years	1-2%	• **1% Growth:** 521 PIs • **2% Growth:** 634 PIs
Group Size	9	• PH-specific analysis based on funding and survey: PI+8 • Consistent with national group size trends: PI+8
Modern Design	Core-centric: -15%	• 15% space efficiency for wet and clinical research space
Type of Research	All Types *New: Clinical*	• Addresses the need for all types of research at PH • Addresses unmet need for clinical research space
ASF/Investigator	Core-centric Standards	• Wet: 170 ASF • Hybrid: 135 ASF • Computational: 100 ASF • Clinical: 190 ASF
Type of Research Space	Computationally integrated	• Wet: 45% • Hybrid: 18% • Computational: 19% • Clinical: 18% • Plan to accommodate shift in research type over 20 years
Core Space	20% Cores 15% Animals	• 20% of new ASF of non-computational space for Cores • 15% of new ASF of wet research space for Animal Space • Percentages derived from industry standards

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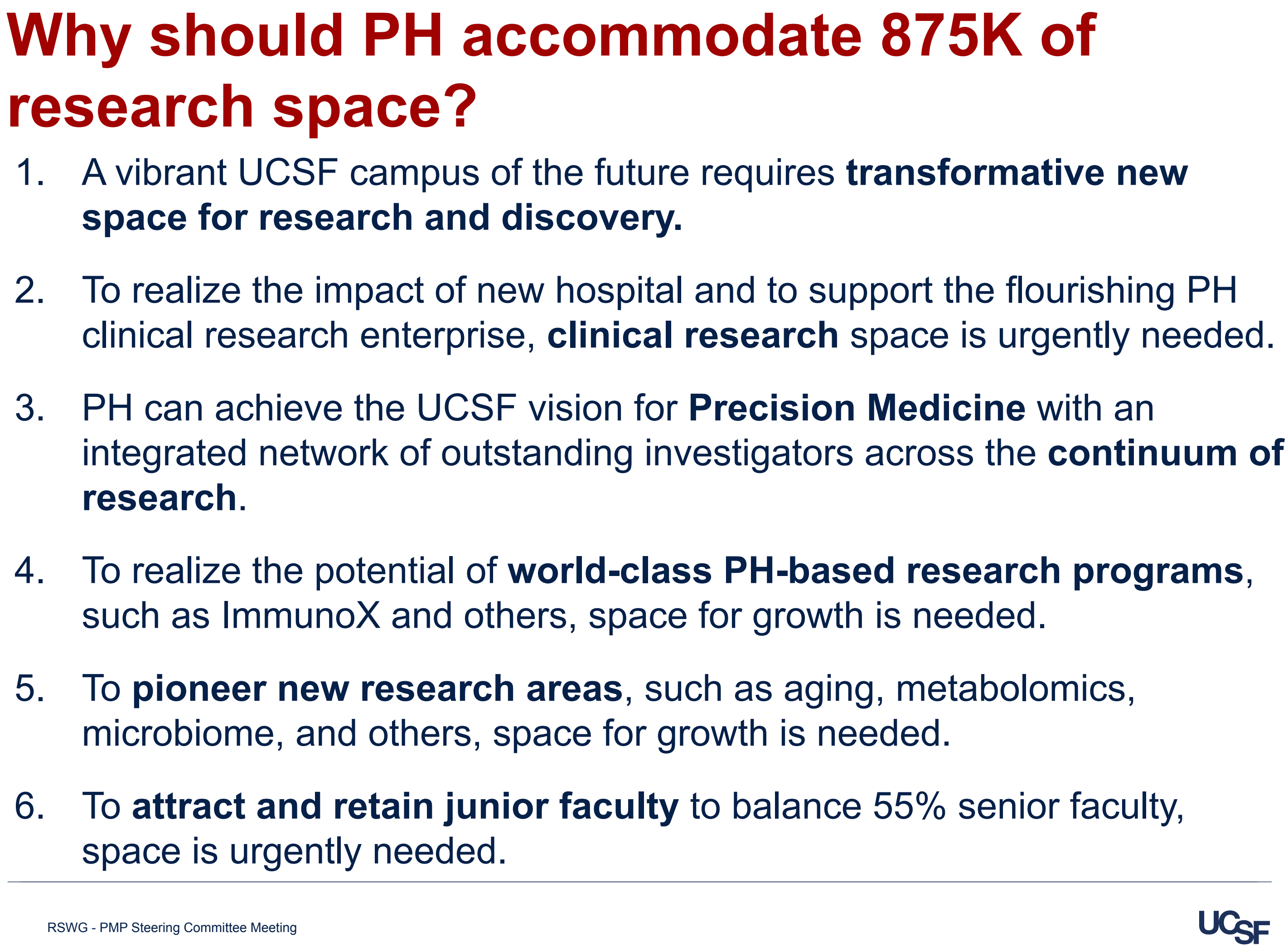
How much research space is needed at PH?

Growth in PIs	Group Size: 9 (PI+8)
1%	722,106 ASF
2%	878,724 ASF

Modest growth projections yield a research space calculation of 722,000 - 875,000 ASF.

Realizing the transformative potential of PH requires that we right size the research for growth and success.



Why should PH accommodate 875K of research space?

1. A vibrant UCSF campus of the future requires **transformative new space for research and discovery.**
2. To realize the impact of new hospital and to support the flourishing PH clinical research enterprise, **clinical research** space is urgently needed.
3. PH can achieve the UCSF vision for **Precision Medicine** with an integrated network of outstanding investigators across the **continuum of research**.
4. To realize the potential of **world-class PH-based research programs**, such as ImmunoX and others, space for growth is needed.
5. To **pioneer new research areas**, such as aging, metabolomics, microbiome, and others, space for growth is needed.
6. To **attract and retain junior faculty** to balance 55% senior faculty, space is urgently needed.

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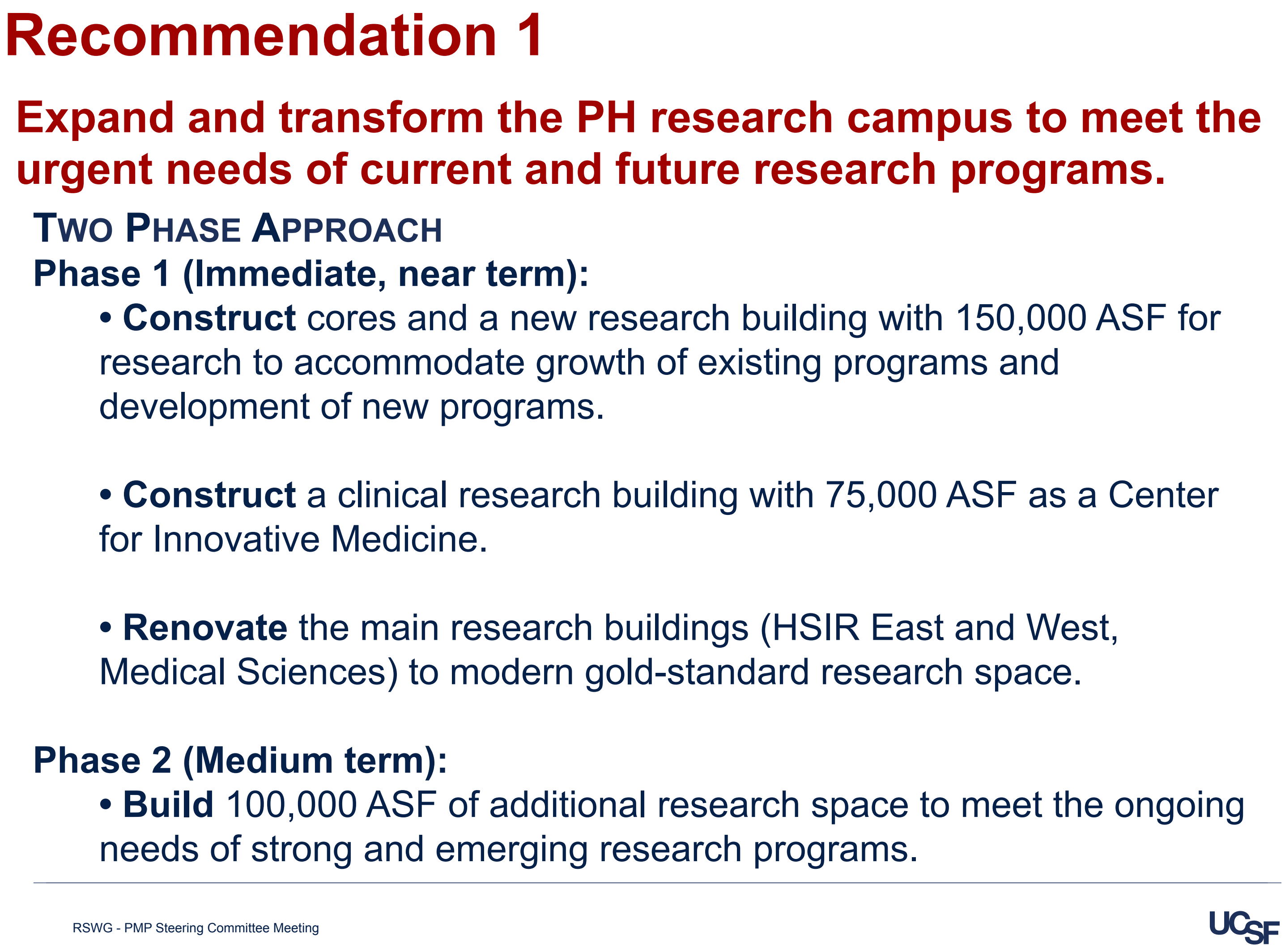
Recommendation 1

How much research space does PH need?



Recommendation 1

Expand and transform the PH research campus to meet the urgent needs of current and future research programs.

TWO PHASE APPROACH

Phase 1 (Immediate, near term):

- **Construct** cores and a new research building with 150,000 ASF for research to accommodate growth of existing programs and development of new programs.
- **Construct** a clinical research building with 75,000 ASF as a Center for Innovative Medicine.
- **Renovate** the main research buildings (HSIR East and West, Medical Sciences) to modern gold-standard research space.

Phase 2 (Medium term):

- **Build** 100,000 ASF of additional research space to meet the ongoing needs of strong and emerging research programs.

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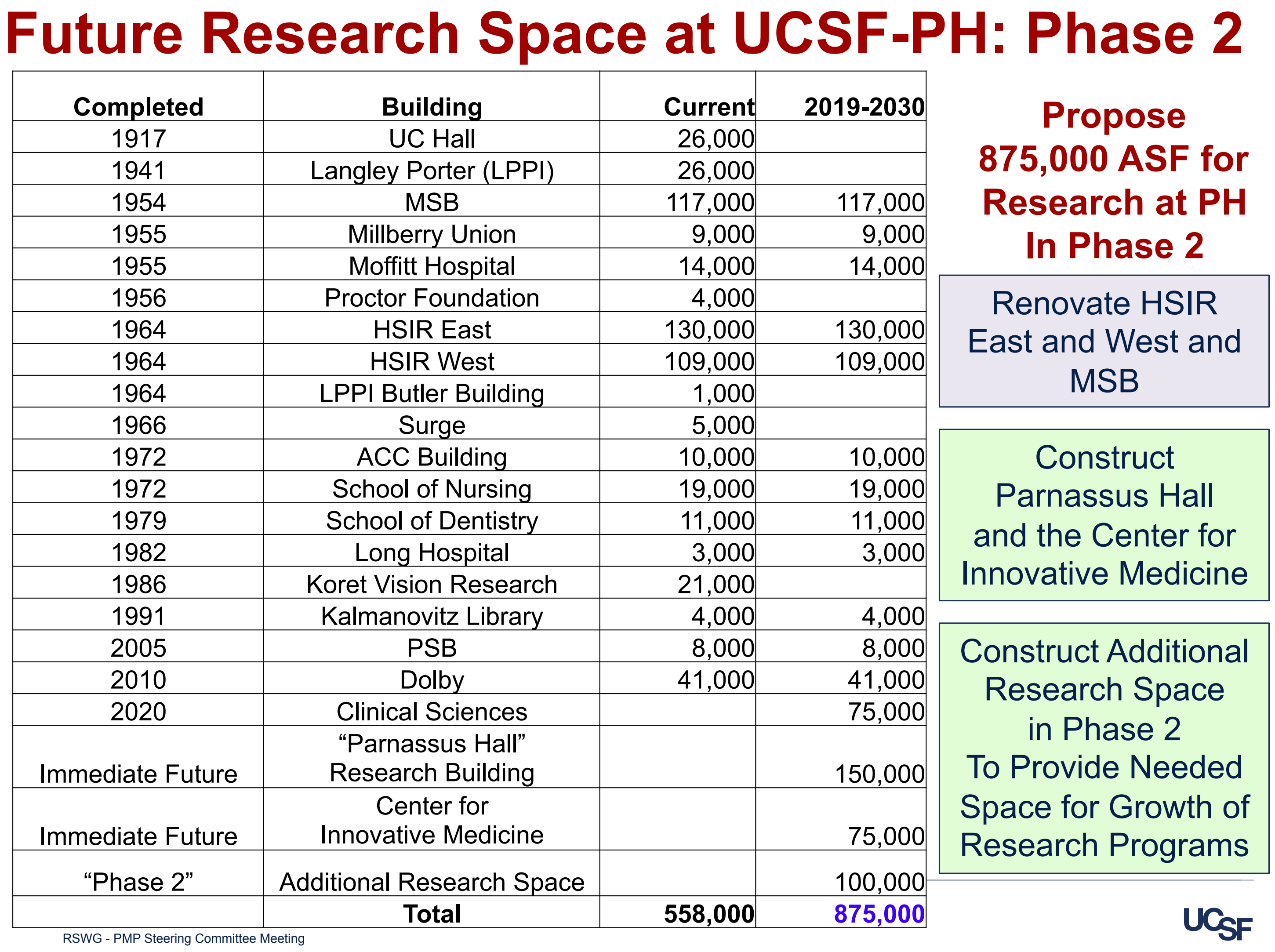
Future Research Space at UCSF-PH: Phase 1

Completed	Building	Current	2019-2030
1917	UC Hall	26,000	
1941	Langley Porter (LPPI)	26,000	
1954	MSB	117,000	117,000
1955	Millberry Union	9,000	9,000
1955	Moffitt Hospital	14,000	14,000
1956	Proctor Foundation	4,000	
1964	HSIR East	130,000	130,000
1964	HSIR West	109,000	109,000
1964	LPPI Butler Building	1,000	
1966	Surge	5,000	
1972	ACC Building	10,000	10,000
1972	School of Nursing	19,000	19,000
1979	School of Dentistry	11,000	11,000
1982	Long Hospital	3,000	3,000
1986	Koret Vision Research	21,000	
1991	Kalmanovitz Library	4,000	4,000
2005	PSB	8,000	8,000
2010	Dolby	41,000	41,000
2020	Clinical Sciences		75,000
Immediate Future	“Parnassus Hall” Research Building		150,000
Immediate Future	Center for Innovative Medicine		75,000
	Total	**558,000**	**775,000**

Propose 775,000 ASF for Research at PH In Phase 1

Renovate HSIR East and West and MSB

Construct Parnassus Hall and the Center for Innovative Medicine



Future Research Space at UCSF-PH: Phase 2

Completed	Building	Current	2019-2030
1917	UC Hall	26,000	
1941	Langley Porter (LPPI)	26,000	
1954	MSB	117,000	117,000
1955	Millberry Union	9,000	9,000
1955	Moffitt Hospital	14,000	14,000
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2020	Clinical Sciences		75,000
Immediate Future	“Parnassus Hall” Research Building		150,000
Immediate Future	Center for Innovative Medicine		75,000
“Phase 2”	Additional Research Space		100,000
	Total	**558,000**	**875,000**

Propose 875,000 ASF for Research at PH In Phase 2

Renovate HSIR East and West and MSB

Construct Parnassus Hall and the Center for Innovative Medicine

Construct Additional Research Space in Phase 2
To Provide Needed Space for Growth of Research Programs

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Constructing the new Parnassus Heights research space infrastructure

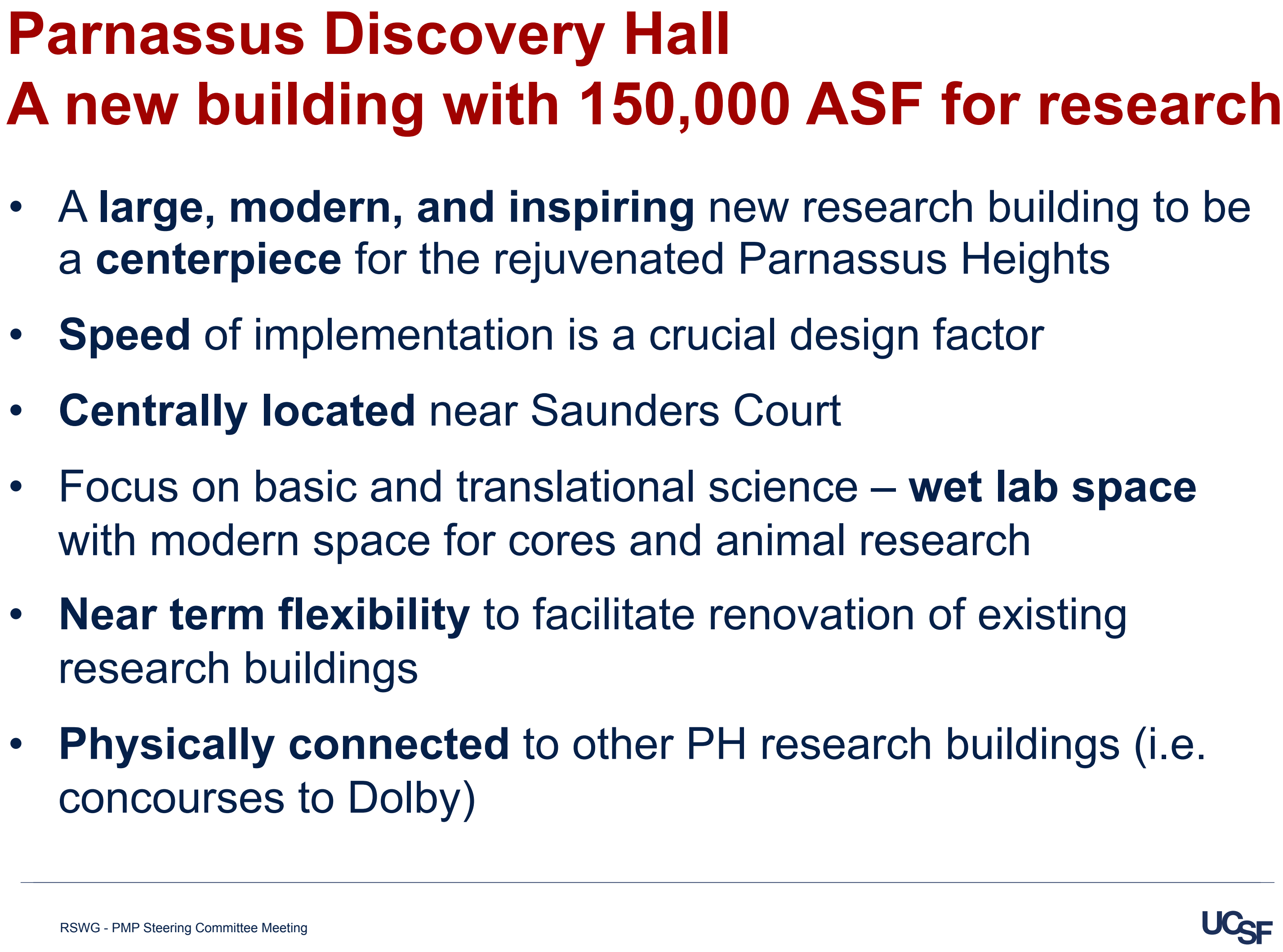
Critical considerations:

1. Speed is paramount to rejuvenate PH research space.
   - Capture current momentum of world-class programs
   - Prevent talent flight
   - Compete for best recruits (faculty and students)

2. Urgency in resolving the unmet need for clinical research space and infrastructure.

3. Mindful of unique space needs of each type of researcher.

4. Inclusive and transparent mechanism to solicit input from the research community on space design and adjacencies.



Parnassus Discovery Hall
A new building with 150,000 ASF for research

- A **large, modern, and inspiring** new research building to be a **centerpiece** for the rejuvenated Parnassus Heights
- **Speed** of implementation is a crucial design factor
- **Centrally located** near Saunders Court
- Focus on basic and translational science – **wet lab space** with modern space for cores and animal research
- **Near term flexibility** to facilitate renovation of existing research buildings
- **Physically connected** to other PH research buildings (i.e. concourses to Dolby)

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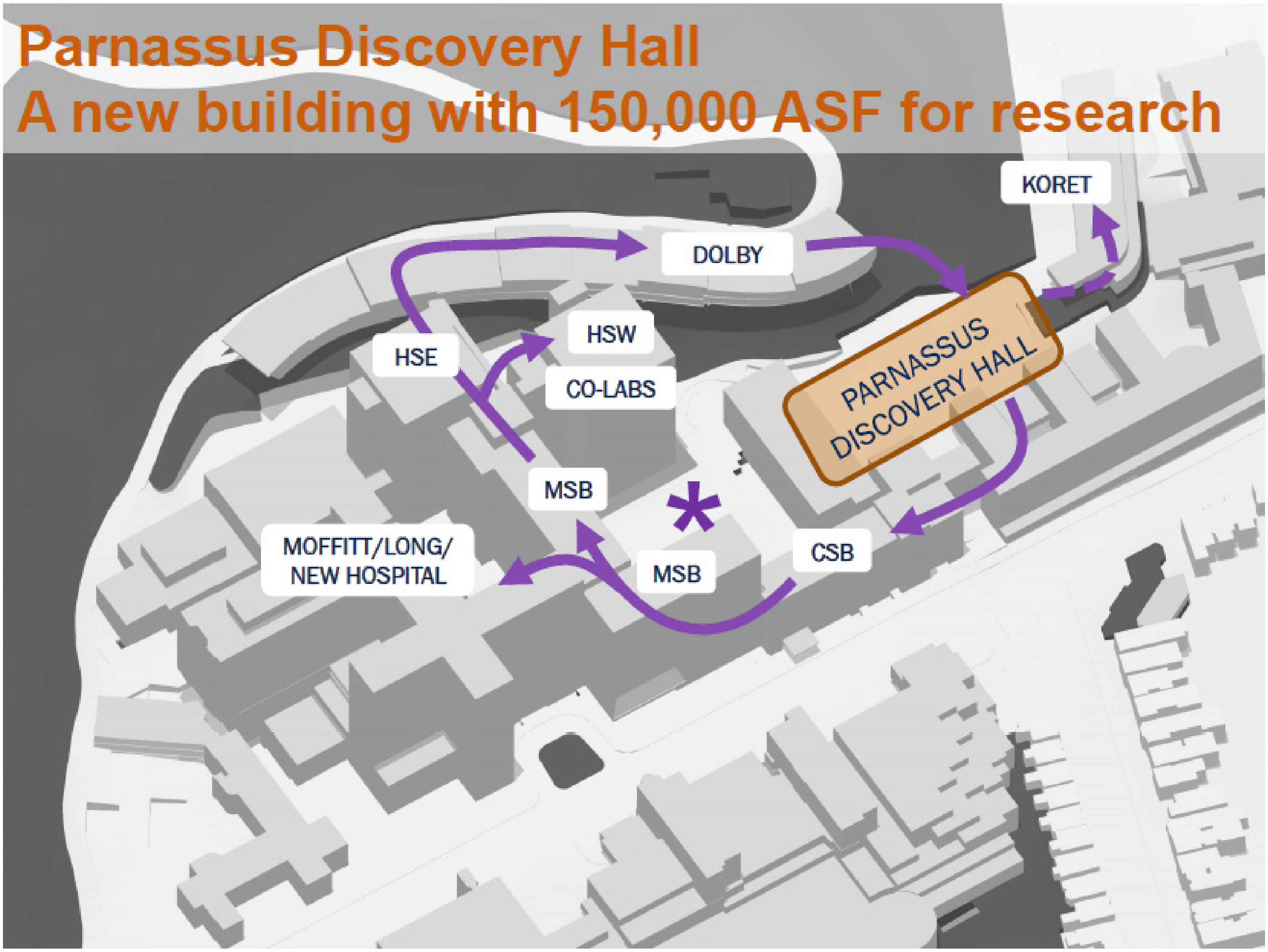

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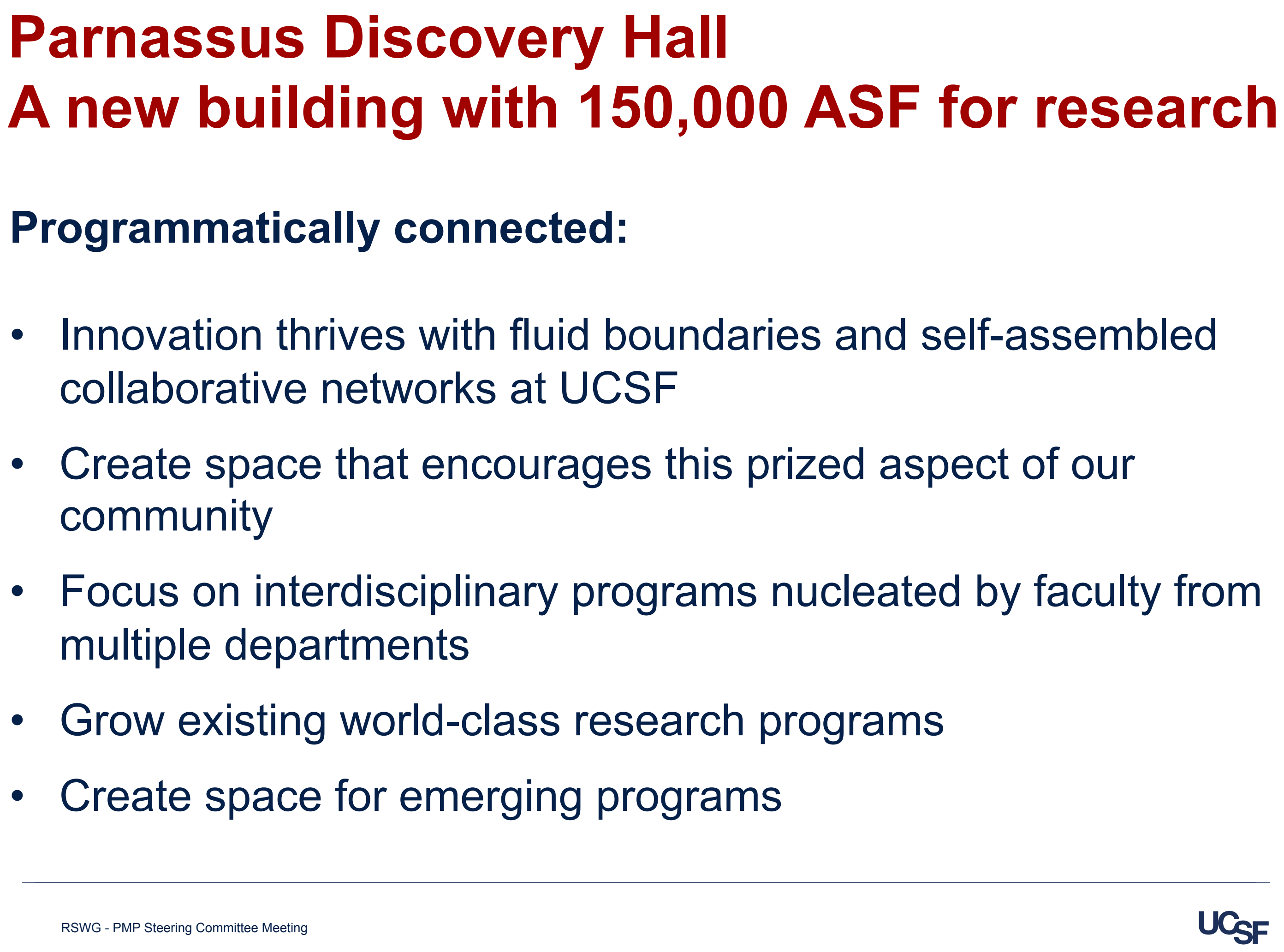

Parnassus Discovery Hall
A new building with 150,000 ASF for research

Programmatically connected:

- Innovation thrives with fluid boundaries and self-assembled collaborative networks at UCSF
- Create space that encourages this prized aspect of our community
- Focus on interdisciplinary programs nucleated by faculty from multiple departments
- Grow existing world-class research programs
- Create space for emerging programs

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Center for Innovative Medicine (75,000 ASF)

Research space for patient-facing clinical research

- A home for **patient-facing clinical research** at PH (cohort studies, clinical trials, mechanism-oriented clinical research)
- **Located on Parnassus** (adjacent to Helen Diller Hospital)
- Accommodating 12 investigator-led **clinical research units (CRUs)**
  - Customized to needs of investigator groups
  - Desks for coordinators, program managers, data managers
  - Study rooms (visits, procedures)
  - Storage (supplies, records)
- Space for **shared needs** – greeting, waiting, phlebotomy, training, compliance, seminars, communication, recruitment

UCSF Center for Innovative Medicine
A home for clinical research (75,000 ASF)

Center For Innovative Medicine
Cohort Studies, Clinical Research, & Clinical Trials

12 Investigator Led CRUs

Investigator-led units of groups (coalitions) of 5-10 investigators. Modeled on the Multidisciplinary Clinical Research Unit and the Airway Clinical Research Center.

Complex Clinical Trials Unit

Shared Resources for Training, Compliance, Recruitment, Other

“..actual clinical research activities (such as participant recruitment, interviews, etc.) take place in clinical areas, typically occupying a room that could otherwise be used for clinical work. And often that clinical work (not inappropriately) takes precedence, cutting short research participant interaction.”

Greg Marcus, M.D.,
Director of Clinical Research
UCSF Cardiology

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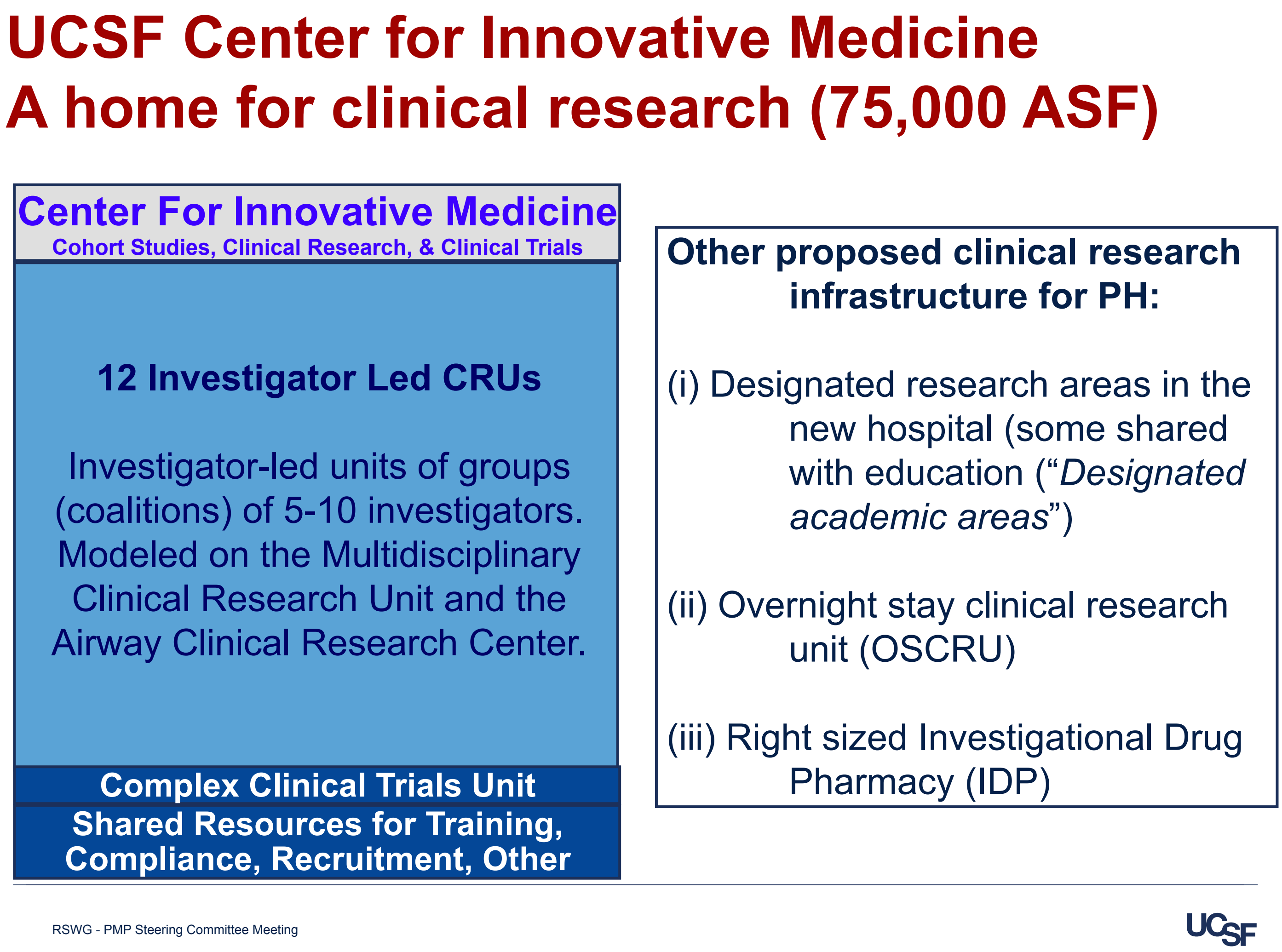


UCSF Center for Innovative Medicine
A home for clinical research (75,000 ASF)

Center For Innovative Medicine

Cohort Studies, Clinical Research, & Clinical Trials

12 Investigator Led CRUs

Investigator-led units of groups (coalitions) of 5-10 investigators. Modeled on the Multidisciplinary Clinical Research Unit and the Airway Clinical Research Center.

Complex Clinical Trials Unit

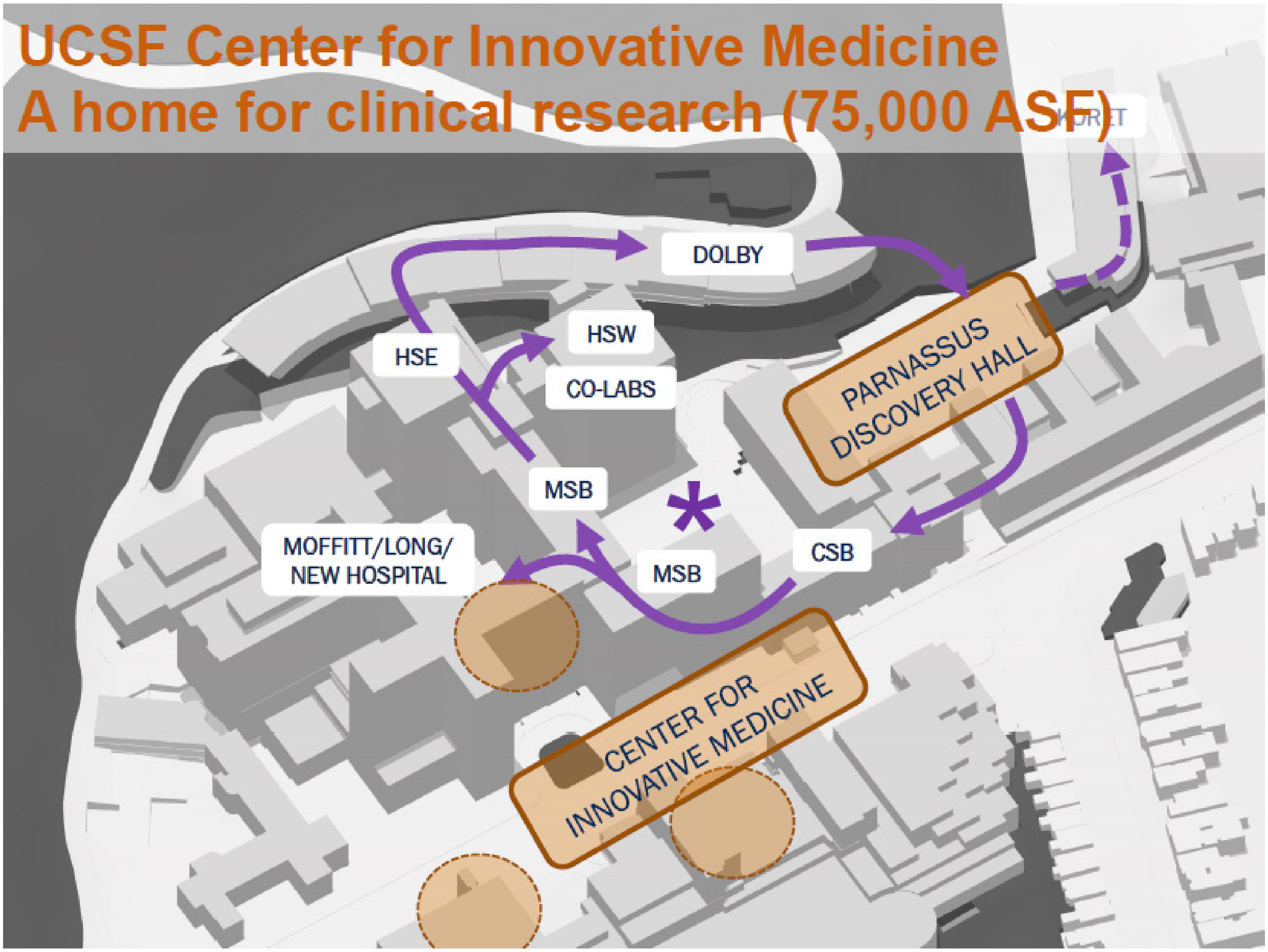
Shared Resources for Training, Compliance, Recruitment, Other

Other proposed clinical research infrastructure for PH:

(i) Designated research areas in the new hospital (some shared with education ("*Designated academic areas*")

(ii) Overnight stay clinical research unit (OSCRU)

(iii) Right sized Investigational Drug Pharmacy (IDP)



UCSF Center for Innovative Medicine
A home for clinical research (75,000 ASF)

Center for Innovative Medicine (75,000 ASF)

Research space for patient-facing clinical research

1. **Provides currently missing clinical research infrastructure**
2. **Fosters clinical research:**
    - Showcases UCSF research; encourages patient participation
    - Attracts trainees to careers in clinical research
    - Builds community among CRCs

3. Allows **links** between CRUs and basic & translational programs:

- Fosters disease biology research & multidisciplinary research
- Strengthens grant applications (P01s, P30s, CTSI)

4. Enables Helen Diller Medical Center to position for **innovation**

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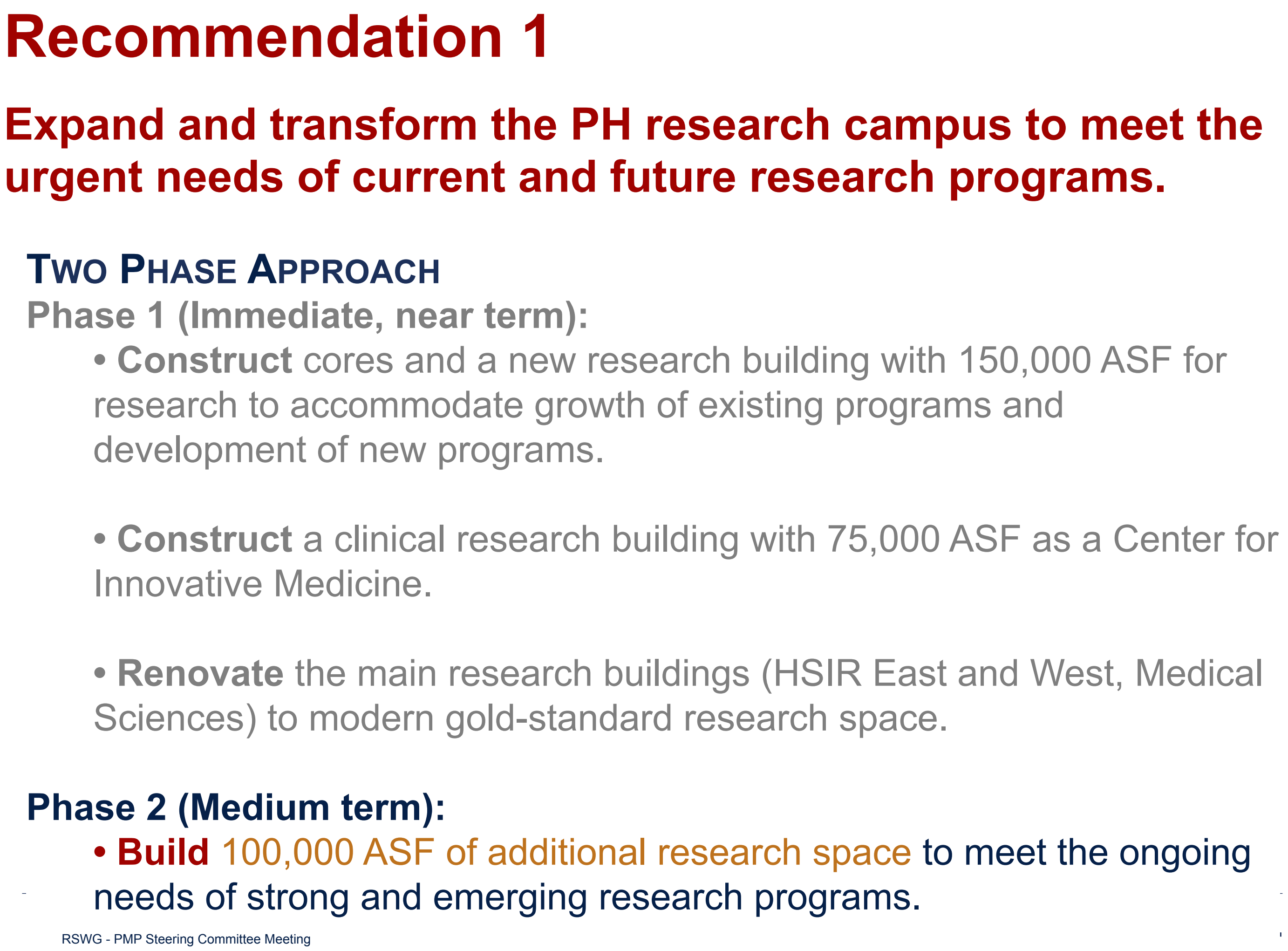

Recommendation 1

Expand and transform the PH research campus to meet the urgent needs of current and future research programs.

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Phase 2 (Medium term):

- **Build** 100,000 ASF of additional research space to meet the ongoing needs of strong and emerging research programs.

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Phase 2: (Medium term)
100,000 ASF of additional research space

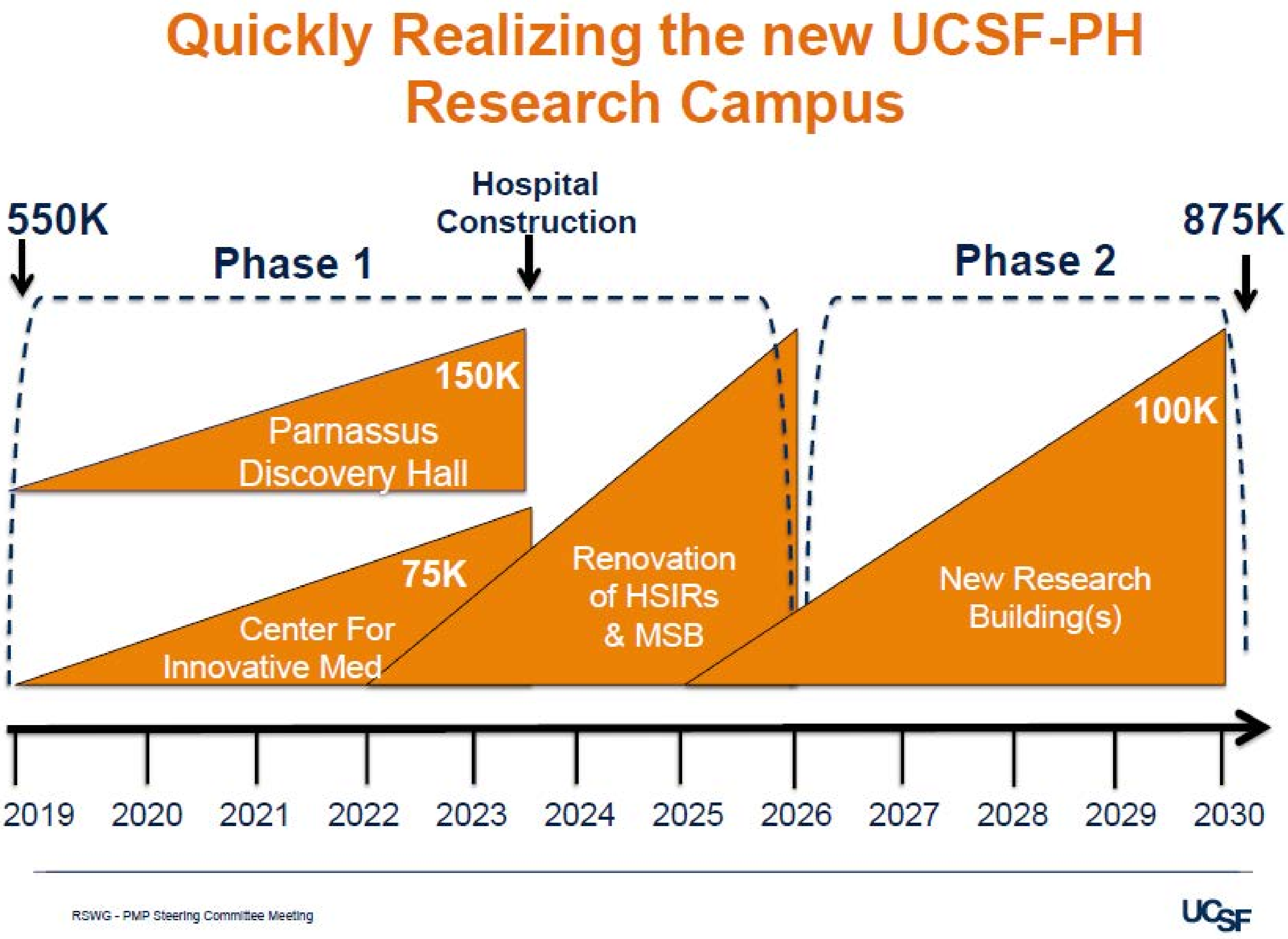
1. Allow for growth of the PH research enterprise (basic, translational, clinical, population).

2. Provide flexibility for research space that meets future research needs, with new programs across the research spectrum and in emerging disciplines (i.e. AI, microbiome).

3. New space should be centrally located, connected to other research functions, and foster programmatic research interactions.

Recommendation 2

What kind of research space does PH need?



Quickly Realizing the new UCSF-PH Research Campus

550K

Phase 1

Hospital Construction

Phase 2

875K

150K

Parnassus Discovery Hall

75K

Center For Innovative Med

Renovation of HSIRs & MSB

100K

New Research Building(s)

2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

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UCSF

Recommendation 2

Create inspiring research space with adjacencies and design elements that spur connectivity, community, innovation, and celebration.

(i) **Connectivity:** Center research space activities around Saunders Court.

(ii) **Community:** Create physical and digital connectivity, thoughtful adjacencies, and inviting, right-sized, formal and informal interaction spaces to overcome disciplinary and geographic boundaries.

(iii) **Innovation:** Co-locate programmatic research groups with critical mass in high quality space that is designed and allocated using inclusive and transparent mechanisms.

(iv) **Celebration:** Attract and inspire researchers and partners by celebrating UCSF science with art, architecture, and natural beauty.

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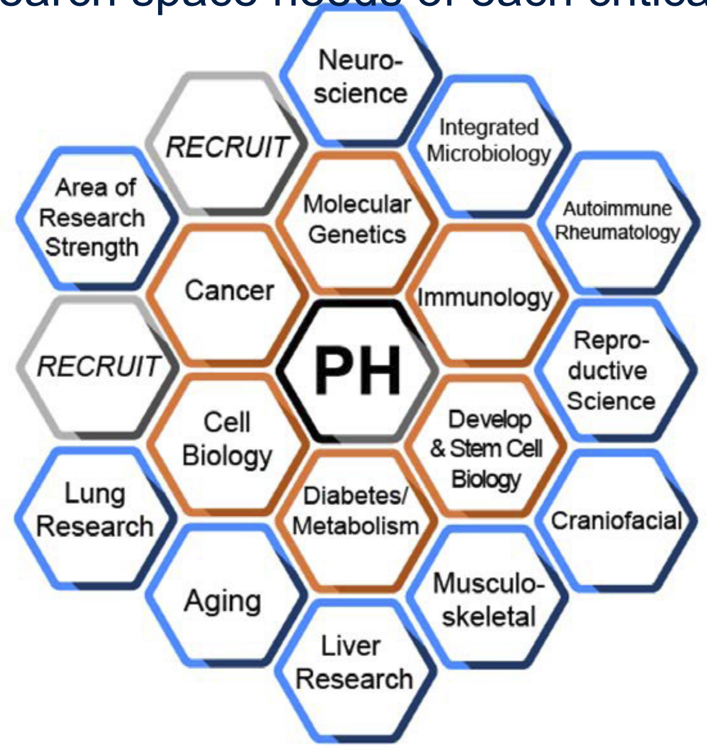
Integration of the PH Research Enterprise Basic Science Programs

Challenge: What are the research space needs of each critical mass of researchers?

One size does not fit all

Disciplines: research areas with the most PH investigators that integrate all PH researchers

Topics: research areas with a critical mass of PH investigators

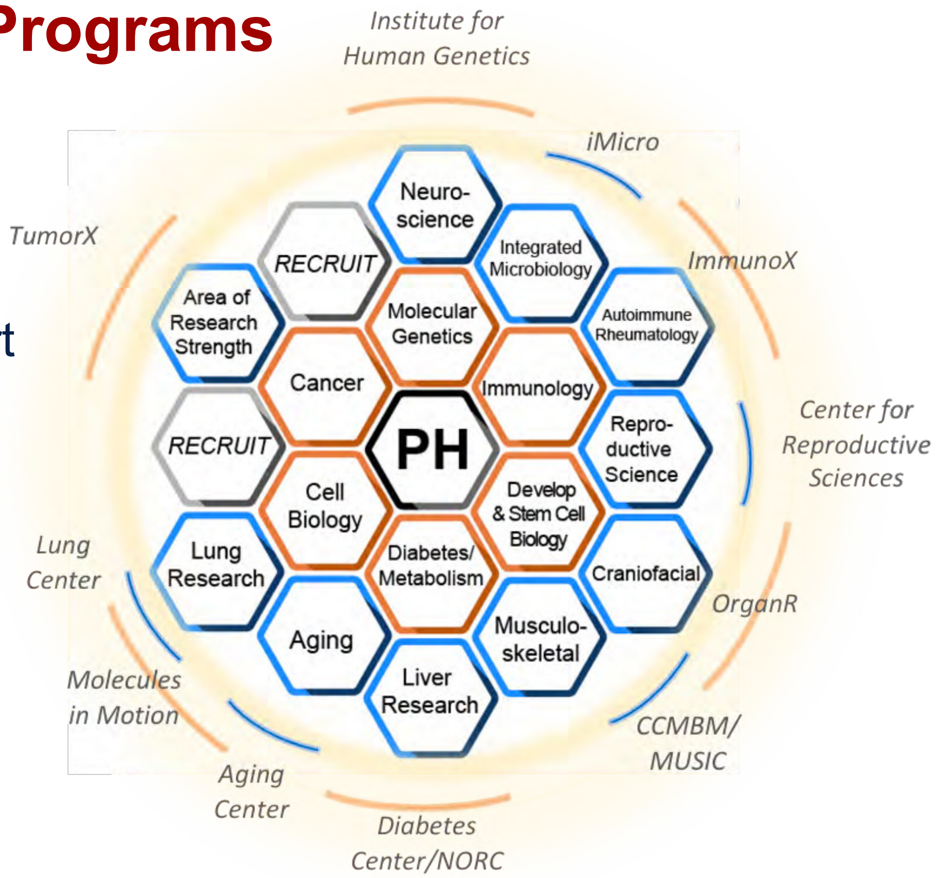


Research Survey for PH basic scientists with 50%+ effort: "Please list 2 you identify with most and would like to be collocated with." Survey data supported by funding, Centers, ORUs, and conversations.

Integration of the PH Research Enterprise Basic Science Programs

- Programs, Centers, ORUs, and Cores support PH research.

- The same model applies to other types of research.



PH
Neuro-science
Integrated Microbiology
Autoimmune Rheumatology
Molecular Genetics
Immunology
Repro-ductive Science
Develop & Stem Cell Biology
Craniofacial
Musculo-skeletal
Liver Research
Diabetes/ Metabolism
Aging
Cell Biology
Lung Research
RECRUIT
Cancer
Area of Research Strength
RECRUIT
Institute for Human Genetics
iMicro
ImmunoX
Center for Reproductive Sciences
OrganR
CCMBM/ MUSIC
Diabetes Center/NORC
Aging Center
Molecules in Motion
Lung Center
TumorX

For illustration purposes, many other Programs, Centers, ORUs, and Cores are not shown here.

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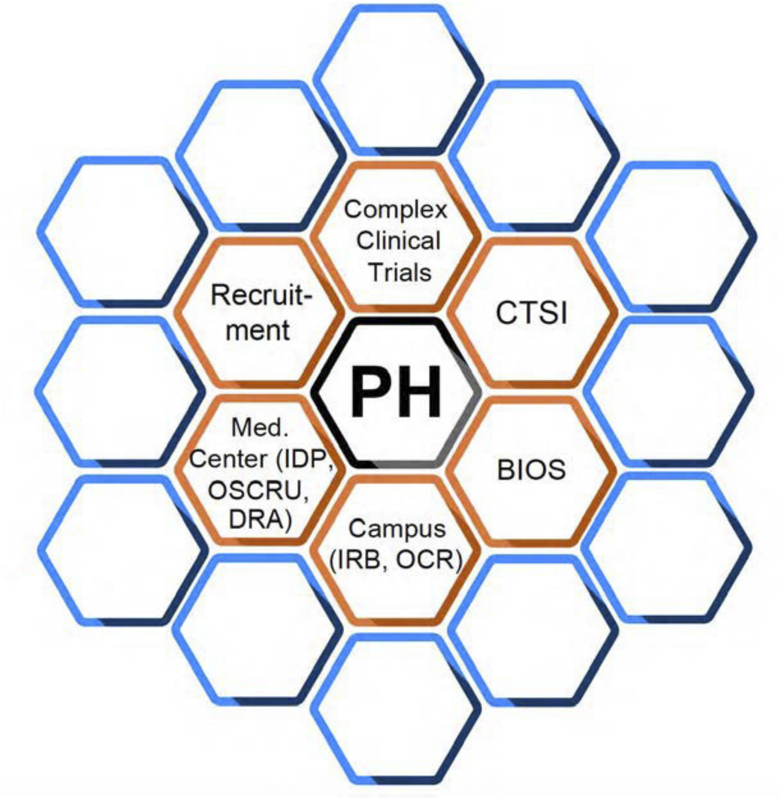
Integration of the PH Research Enterprise Clinical Research Programs

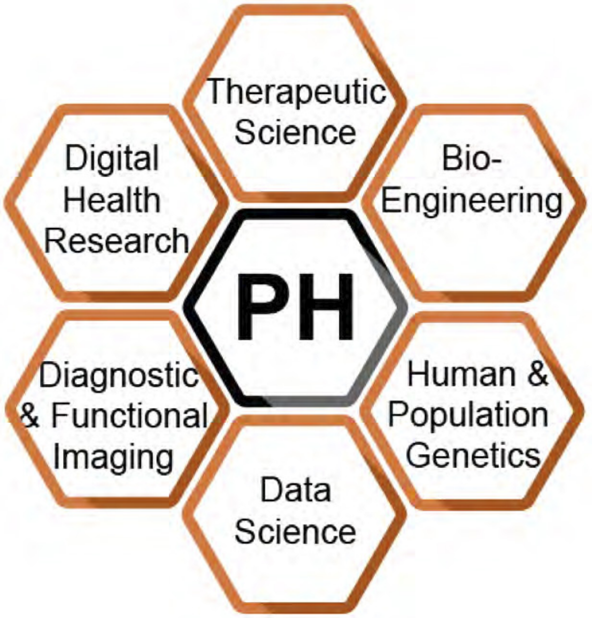


⬡ Investigator led clinical research units in the Center for Innovative Medicine

⬡ Centralized Services For Clinical Research

Integration of the PH Research Enterprise Quantitative Biomedical Research

- Some groups are currently below critical mass
- Disperse investigators (many schools, departments, disciplines, and buildings)
- Strategic investment will augment PH fundamental and clinical impact
- Aligned with Precision Medicine Initiative
- Additional outreach still needed



PH

Therapeutic Science

Bio-Engineering

Human & Population Genetics

Data Science

Diagnostic & Functional Imaging

Digital Health Research

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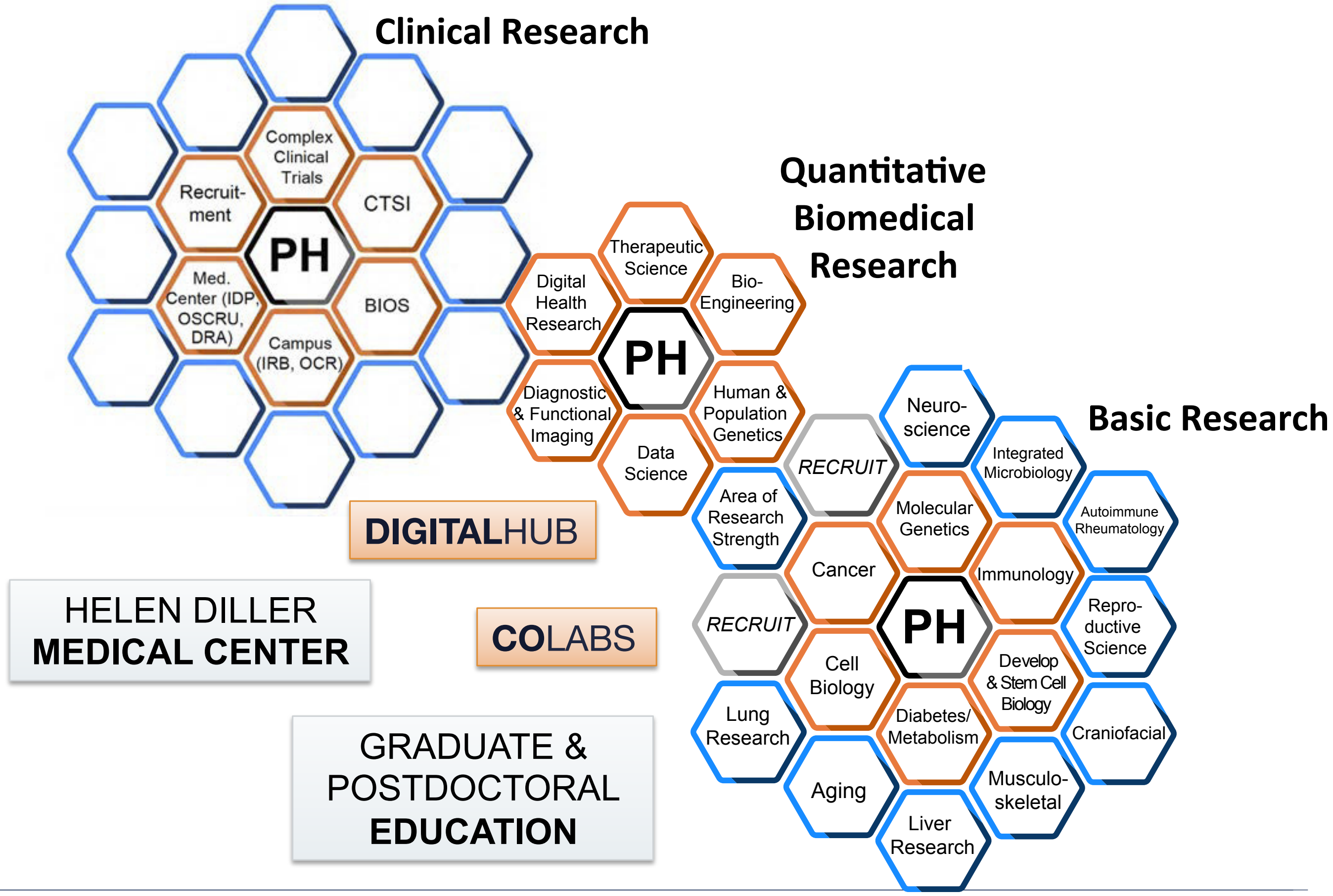
Integration of the PH Research Enterprise



Clinical Research

PH

Complex Clinical Trials

Recruit-ment

CTSI

Med. Center (IDP, OSCRU, DRA)

BIOS

Campus (IRB, OCR)

Quantitative Biomedical Research

PH

Therapeutic Science

Digital Health Research

Bio-Engineering

Diagnostic & Functional Imaging

Human & Population Genetics

Data Science

Basic Research

PH

Neuro-science

RECRUIT

Integrated Microbiology

Area of Research Strength

Molecular Genetics

Autoimmune Rheumatology

Cancer

Immunology

RECRUIT

Repro-ductive Science

Cell Biology

Develop & Stem Cell Biology

Lung Research

Diabetes/ Metabolism

Craniofacial

Aging

Musculo-skeletal

Liver Research

DIGITALHUB

HELEN DILLER
MEDICAL CENTER

COLABS

GRADUATE &
POSTDOCTORAL
EDUCATION

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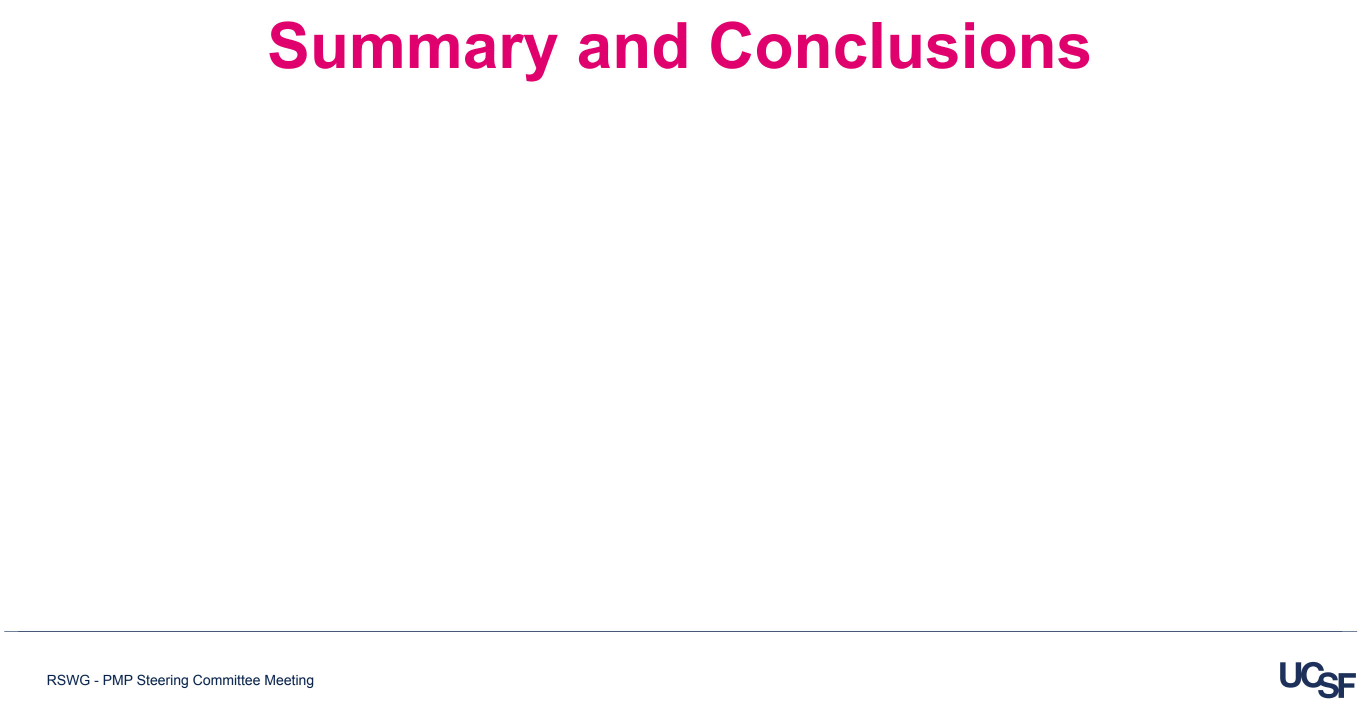

Summary and Conclusions

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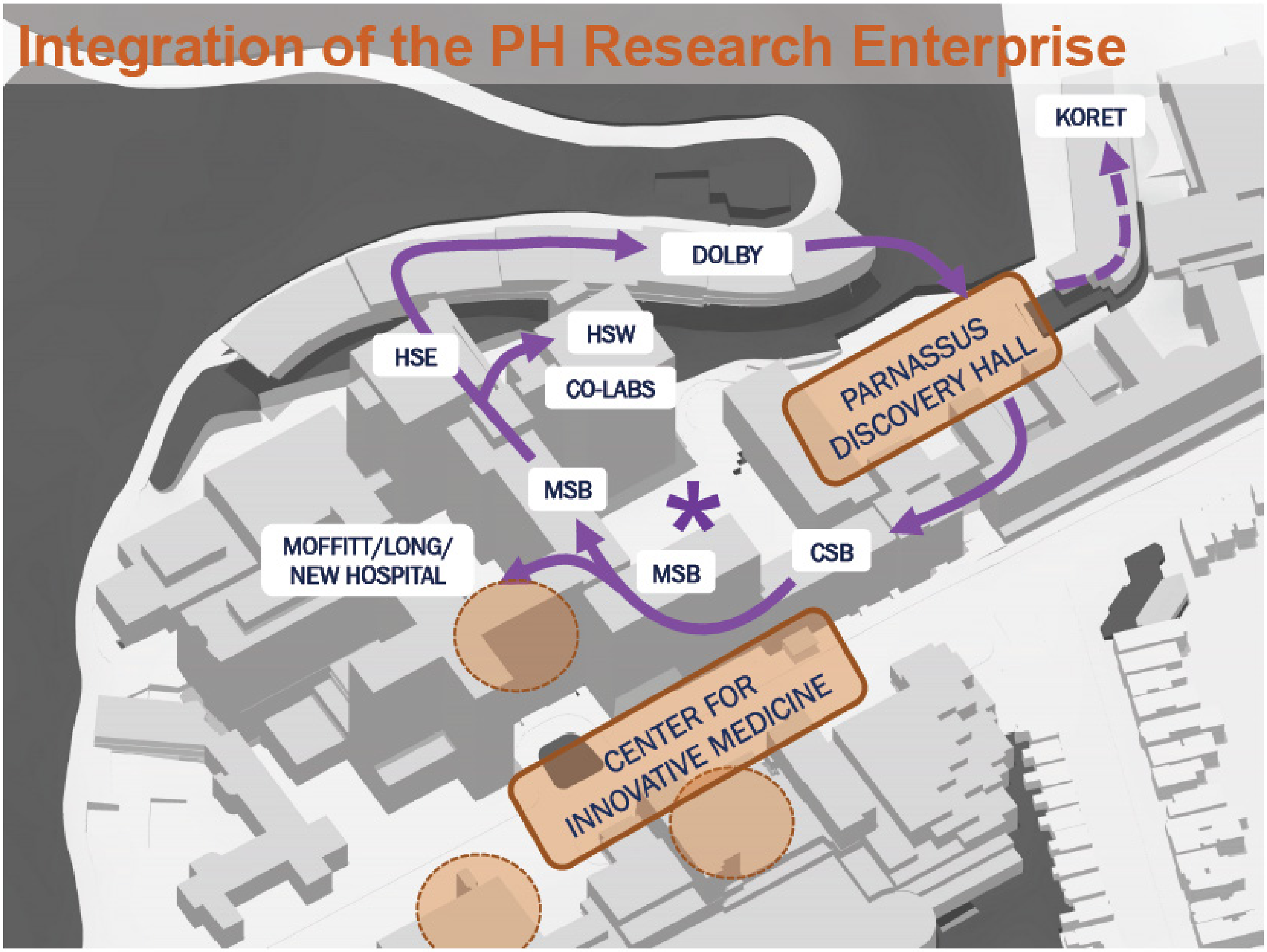
UCSF PH Research

A world class and thriving enterprise.

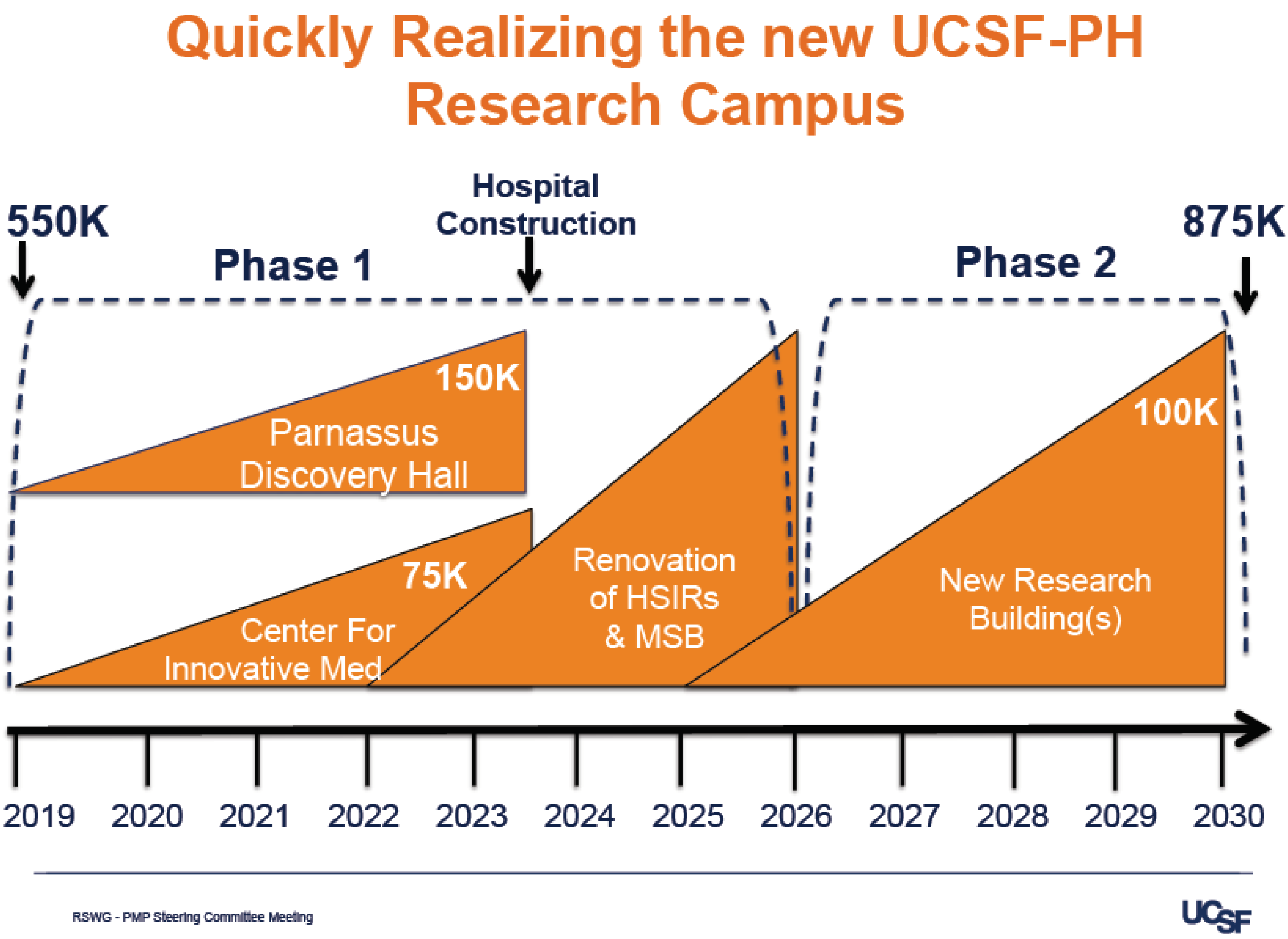
Multi-faceted strength across research disciplines, including basic, clinical, translational and computational.

The new Helen Diller Medical Center and PMP process sparks a unique opportunity to create **transformative new space for research and discovery** that will:

- Realize the potential of outstanding PH research programs
- Pioneer clinical research infrastructure and innovation
- Cultivate exciting new research programs
- Advance a vision for impactful integrated research
- Attract and retain talented faculty and trainees



Integration of the PH Research Enterprise



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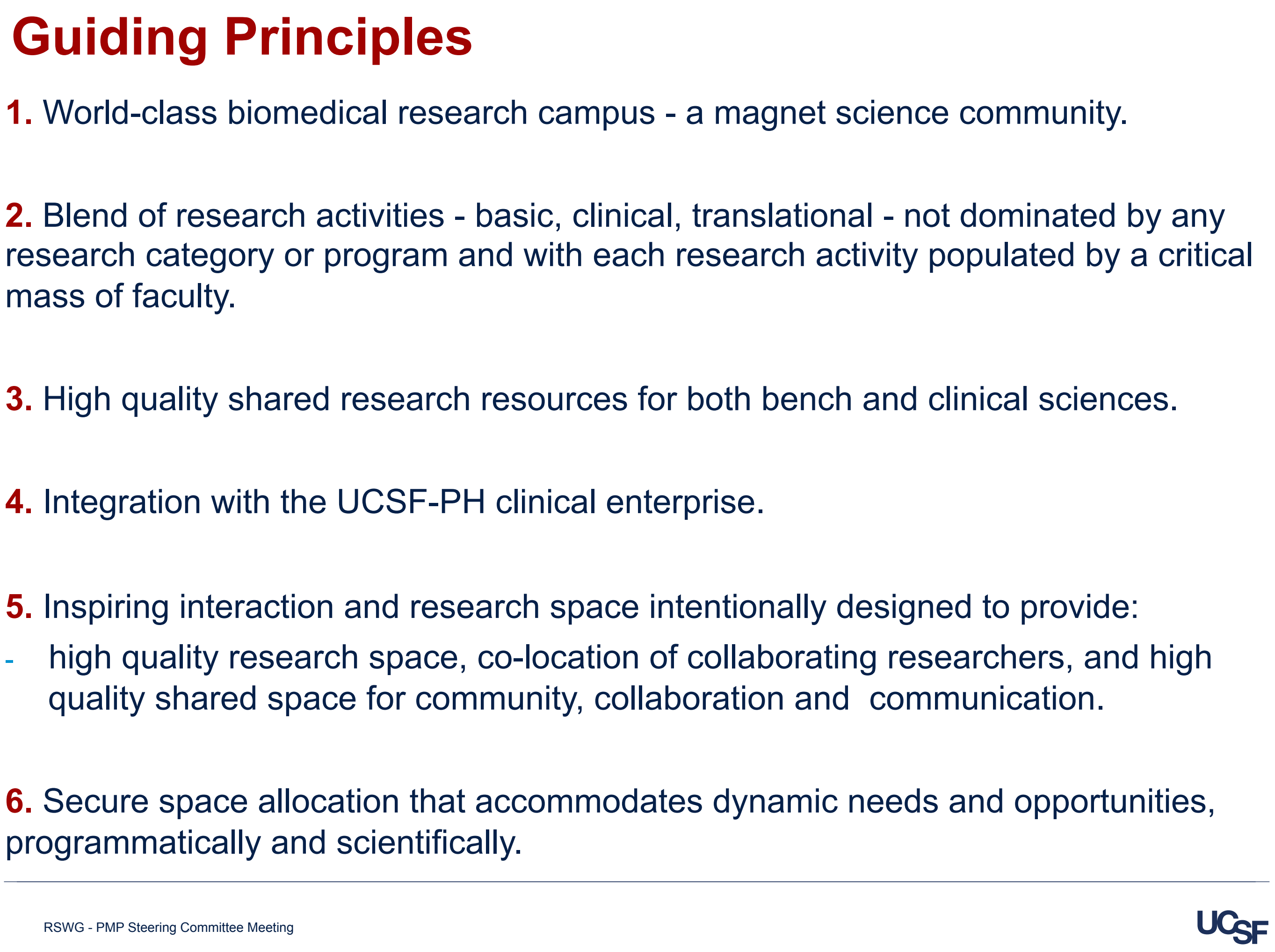

Guiding Principles

1. World-class biomedical research campus - a magnet science community.

2. Blend of research activities - basic, clinical, translational - not dominated by any research category or program and with each research activity populated by a critical mass of faculty.

3. High quality shared research resources for both bench and clinical sciences.

4. Integration with the UCSF-PH clinical enterprise.

5. Inspiring interaction and research space intentionally designed to provide:

- high quality research space, co-location of collaborating researchers, and high quality shared space for community, collaboration and communication.

6. Secure space allocation that accommodates dynamic needs and opportunities, programmatically and scientifically.

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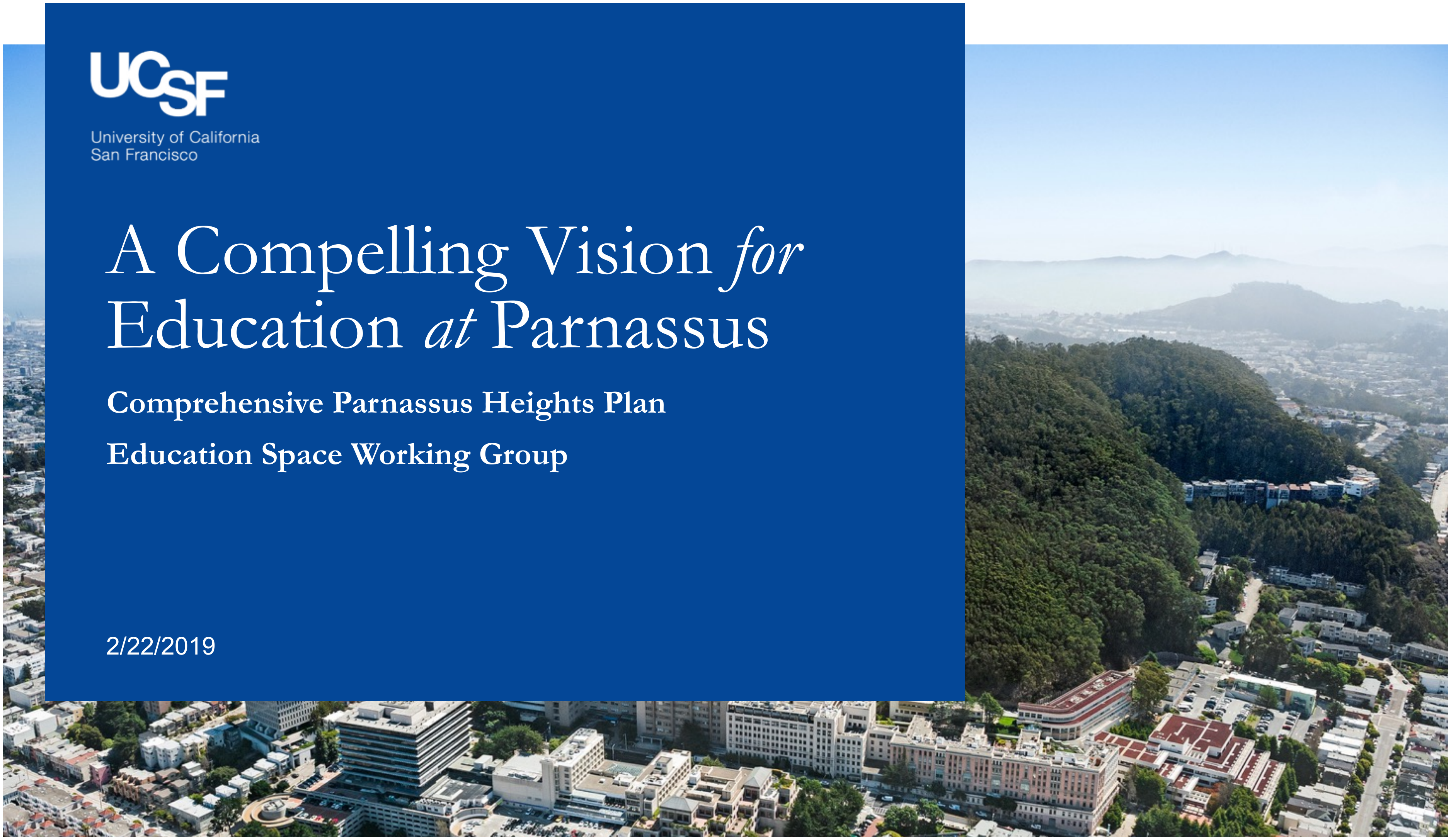
EDUCATION SPACE WORKING GROUP REPORT

For the full report with appendices, please see:
https://space.ucsf.edu/education-space-working-group



University of California
San Francisco

A Compelling Vision *for* Education *at* Parnassus

Comprehensive Parnassus Heights Plan

Education Space Working Group

2/22/2019

Education excellence is the catalyst for all UCSF missions.

We looked to the UCSF 2030 Education Space Values to frame our recommendations.

UCSF 2030 Education Space Values

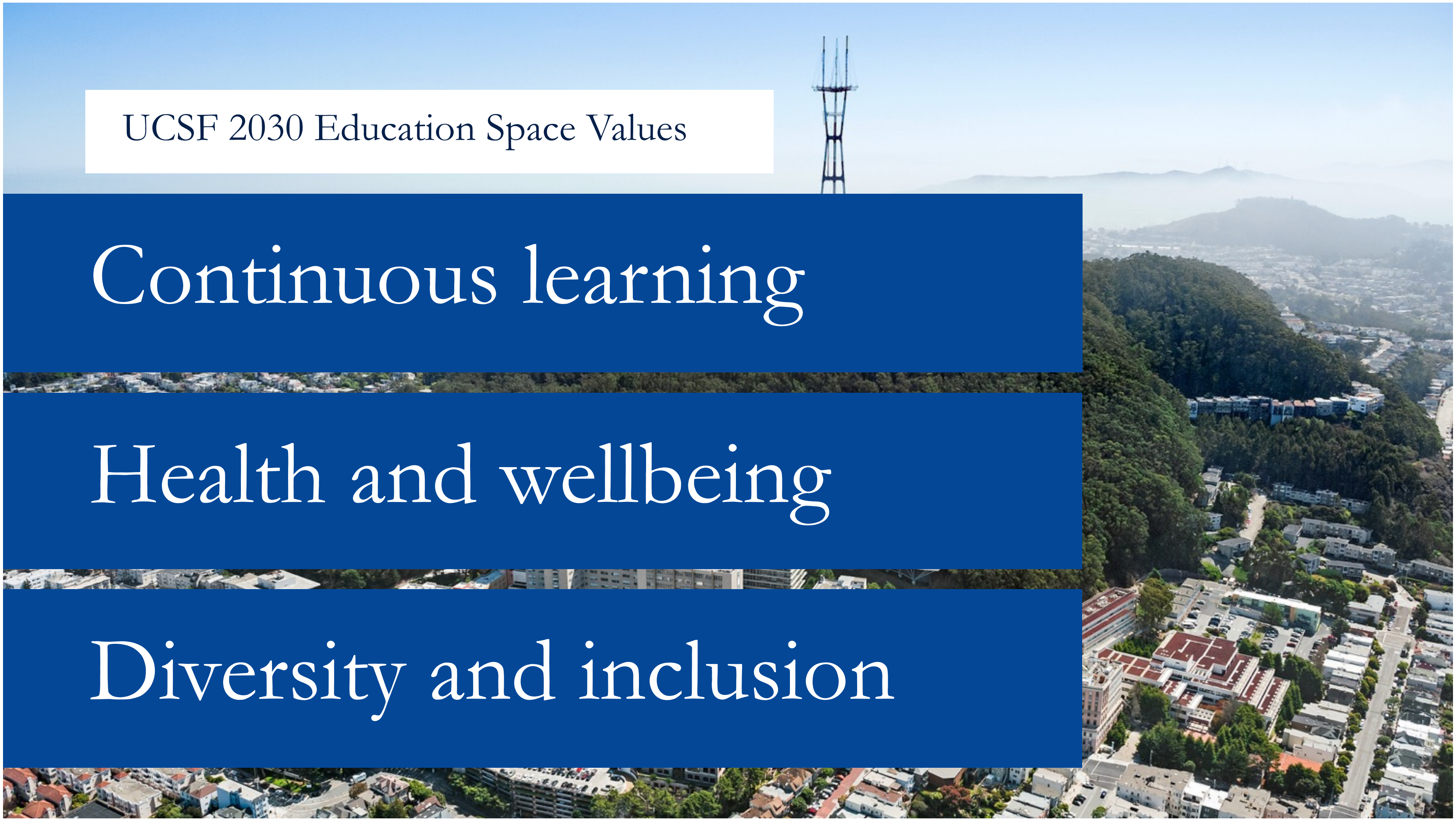
Inquiry, innovation, and investigation

Interprofessional collaborative care

UCSF 2030 Education Space Values

Mentorship, connectivity, and networks of learning

Aligning education, research, and clinical care



UCSF 2030 Education Space Values

Continuous learning

Health and wellbeing

Diversity and inclusion

UCSF 2030 Education Space Values

Empowered and engaged patients and communities

PRIDE in our institution

Major Activities

The Education Space Working Group (ESWG):

- Engaged with stakeholders in all education mission areas, including students.
- Adopted the *UCSF 2030 Education Space Values*.
- Developed *ESWG Education Space Guidelines* which should guide implementation of the recommendations.
- Issued a call for innovative education space proposals, which generated 14 responses, most targeting near-future needs.
- Worked with Perkins Eastman to evaluate the scope and utilization of current classrooms and recommend a revised portfolio.

Working Group Roster

Chris Shaffer	Library
Kim Baltzell	Center for Global Health & School of Nursing
John Davis	School of Medicine
Matt Epperson	Student Academic Affairs
Marcus Ferrone	School of Pharmacy
Amber Fitzsimmons	School of Medicine & Graduate Division
Cara Fladd	Space & Capital Planning
LaMisha Hill	Office of Diversity and Outreach
Sara Hughes	School of Dentistry
Kirby Lee	School of Pharmacy
Chandler Mayfield	School of Medicine
Lisa Magargal	School of Medicine
Maureen Shannon	School of Nursing
Kevin Souza	School of Medicine
Hailey Taylor	School of Dentistry
Michael Trevino	School of Nursing
Sandrijn van Schaik	Kanbar Center for Clinical Skills and Simulation & School of Medicine

Endorsements

We endorse a vision for education space in alignment with the Perkins Eastman “preferred alternative:”

- A new education building east of the Library.
- Dorms and wellness on the west side.
- Clinical activities, including dentistry, on the east side.
- A research building west of Saunders Court.
- Streetscaping to reduce traffic on Parnassus Ave.
- Significant reduction in use of classrooms for meetings.

Therefore, this report proposes spaces that support our education programs and human-centered design to support student life, well-being, and learning.

Endorsements

We endorse the recommendations of the Academic Senate Space Committee (Appendix E):

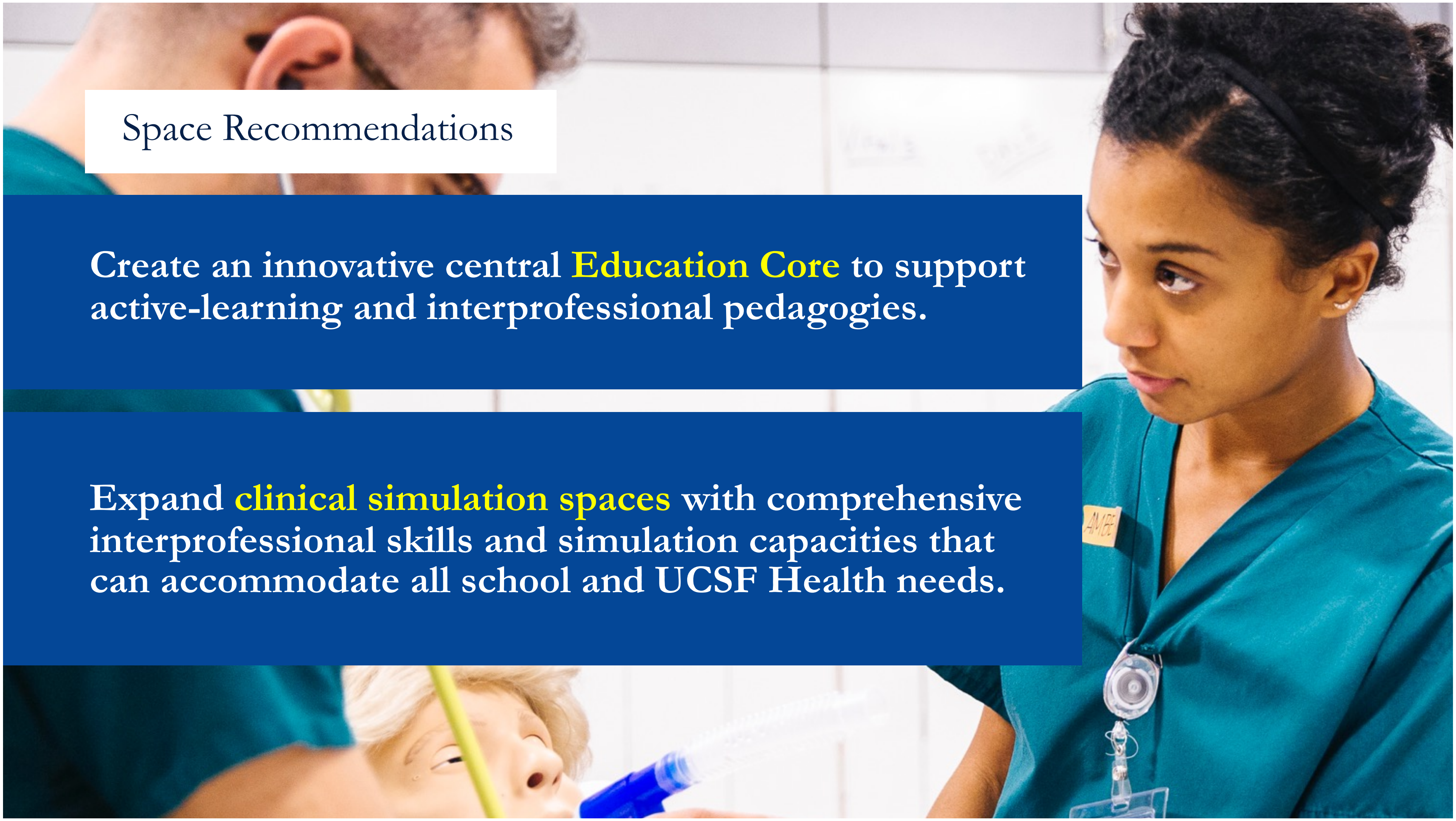
- Academic Space for Clinicians Policy Task Force Report
- Educator and Education Space Policy Task Force Report

Assumptions

This report assumes:

- There will be no reduction in overall education space at Parnassus.
- Parnassus Avenue cannot be closed to traffic, but we imagine that it could and what a wonderful world it would be.

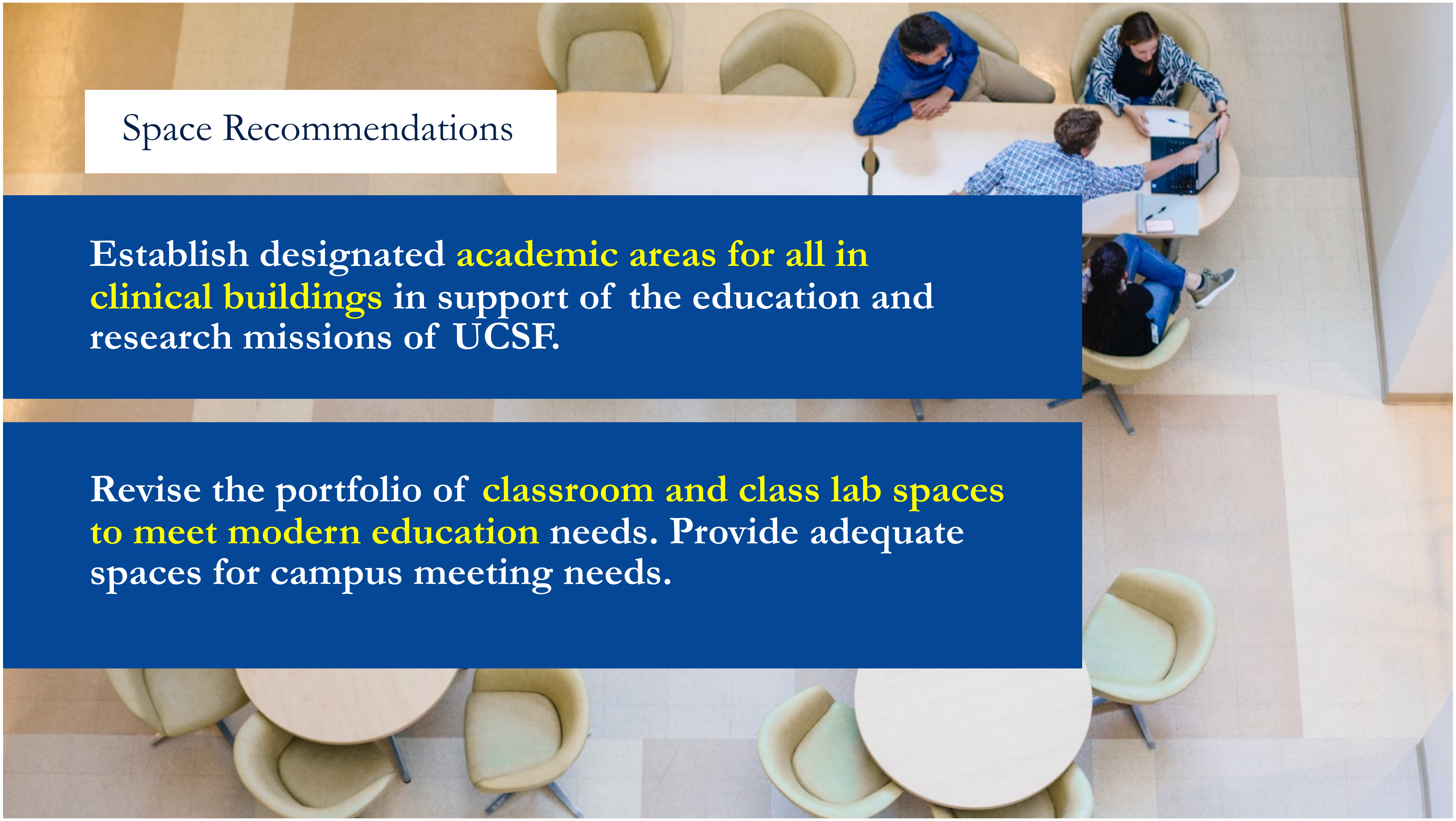
Education Space Working Group Recommendations



Space Recommendations

Create an innovative central **Education Core** to support active-learning and interprofessional pedagogies.

Expand **clinical simulation spaces** with comprehensive interprofessional skills and simulation capacities that can accommodate all school and UCSF Health needs.



Space Recommendations

Establish designated academic areas for all in clinical buildings in support of the education and research missions of UCSF.

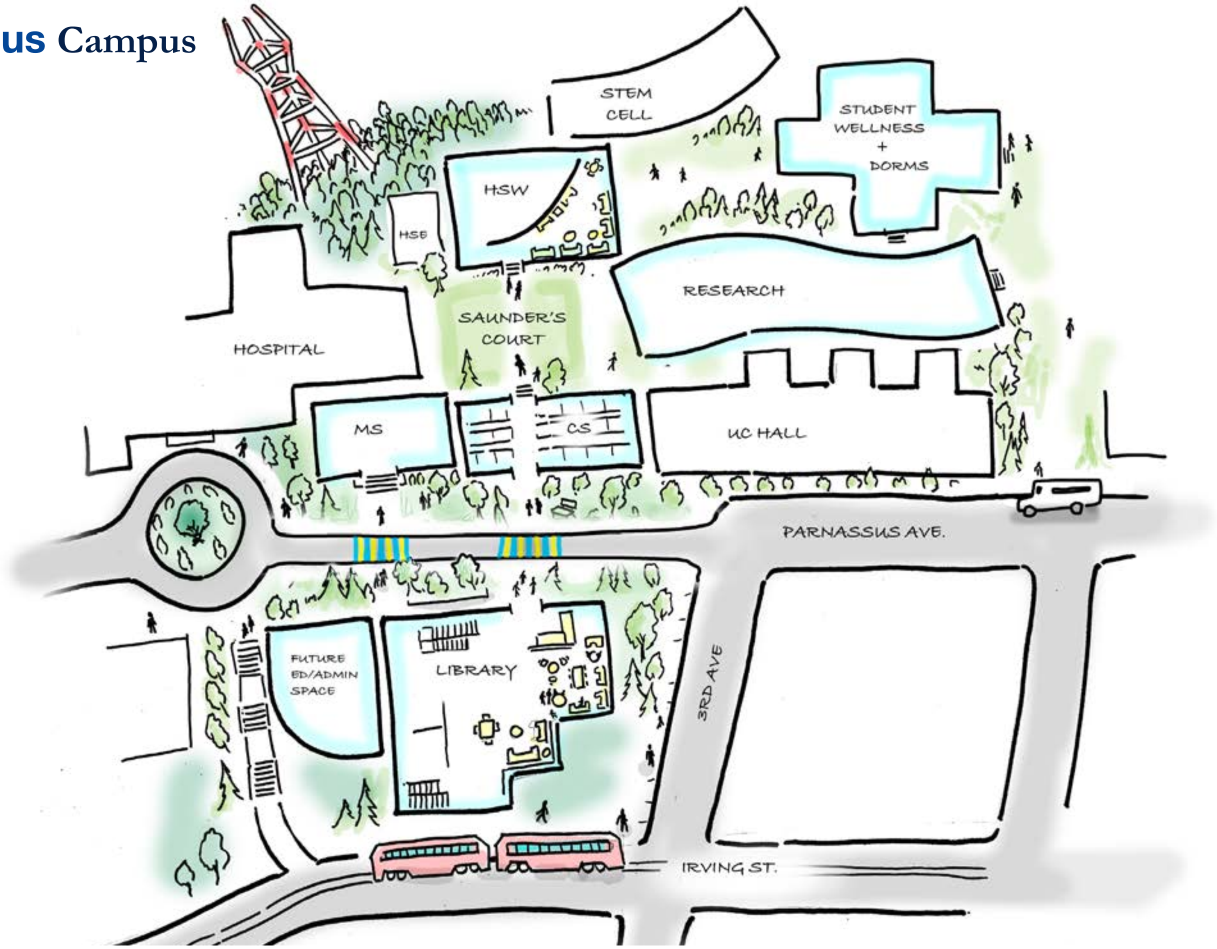
Revise the portfolio of classroom and class lab spaces to meet modern education needs. Provide adequate spaces for campus meeting needs.

Space Recommendations

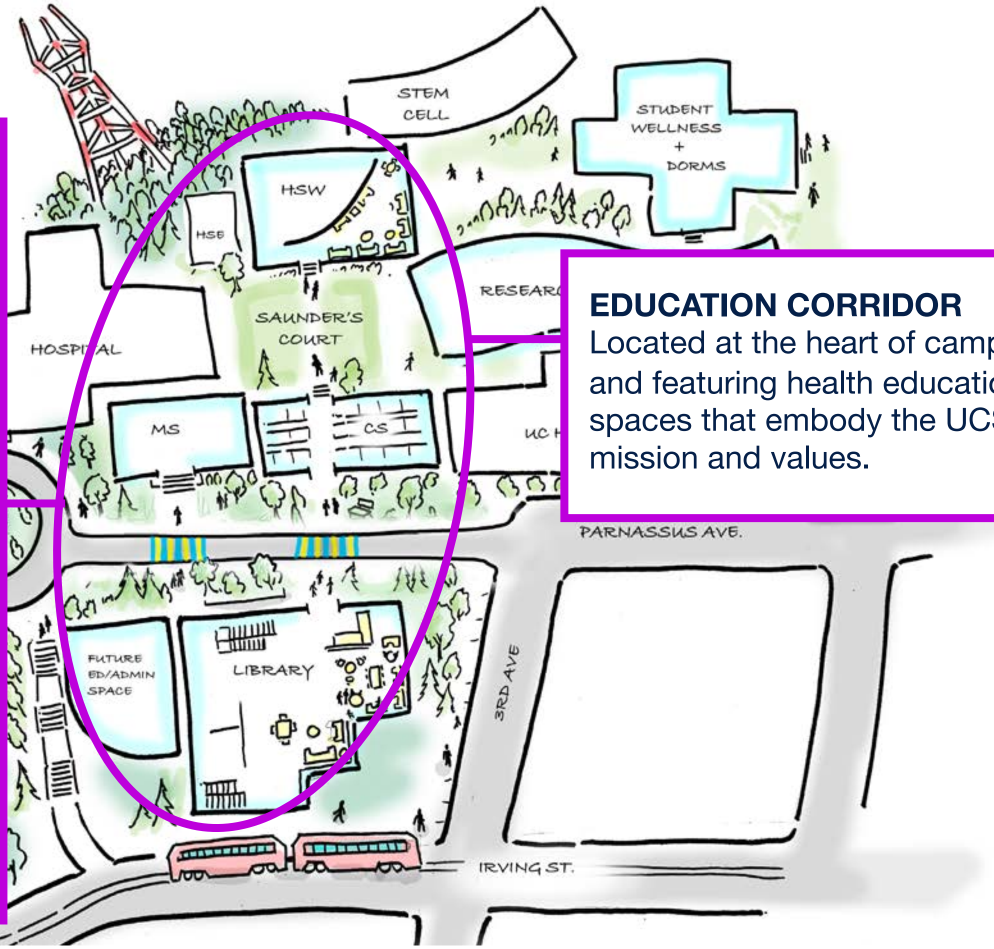
Promote a vibrant community to academic support student life, well-being, and learning on our campus.

A Reimagined Teaching & Learning Experience

Future Parnassus Campus



Future Parnassus Campus



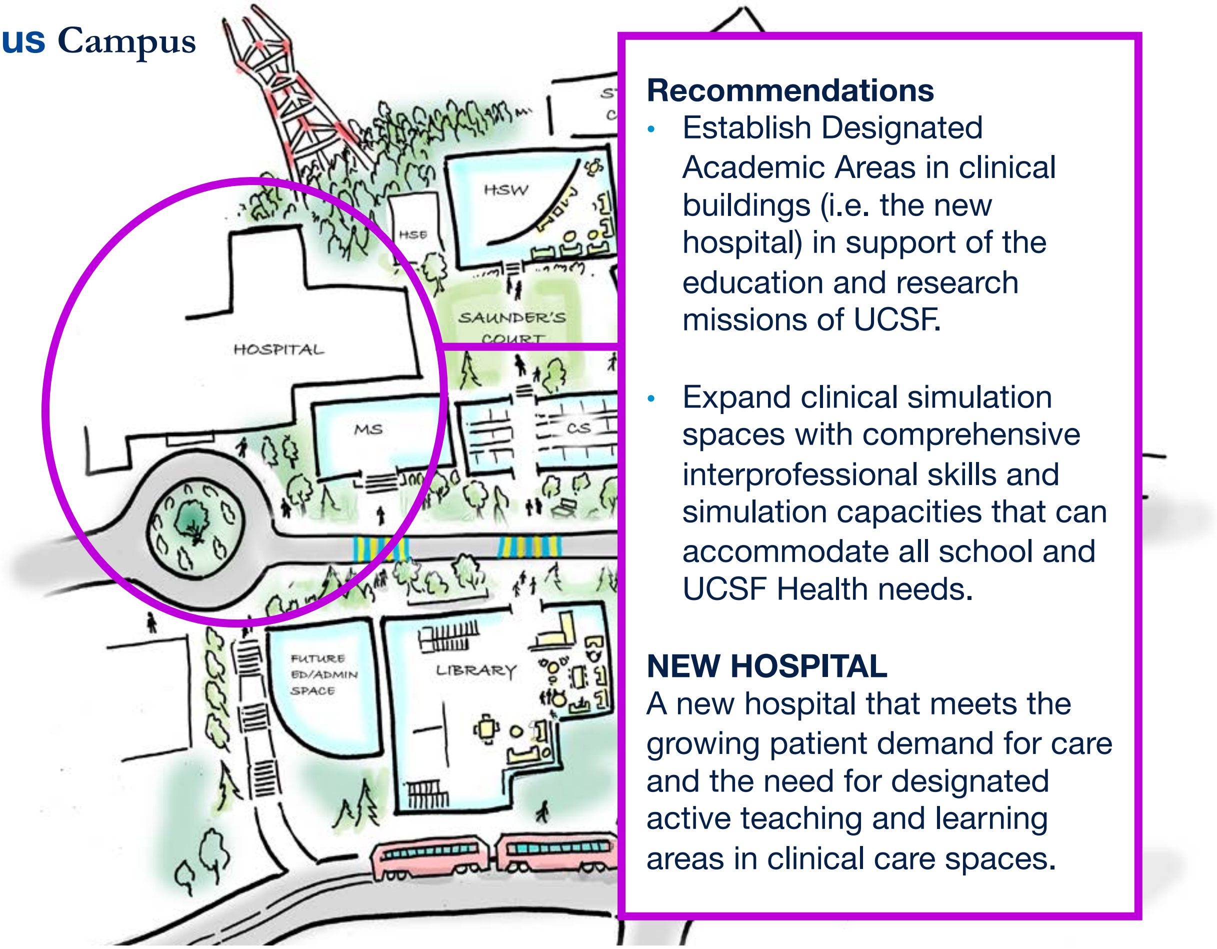
Recommendations

- Create an innovative central Education Core to support active-learning and interprofessional pedagogies.
- Revise the portfolio of classroom and class lab spaces to meet modern education requirements. Provide different spaces for campus meeting needs.
- Expand clinical simulation spaces with comprehensive interprofessional skills and simulation capacities that can accommodate all school and UCSF Health needs.

EDUCATION CORRIDOR
Located at the heart of campus and featuring health education spaces that embody the UCSF mission and values.

UCSF

Future **Parnassus** Campus



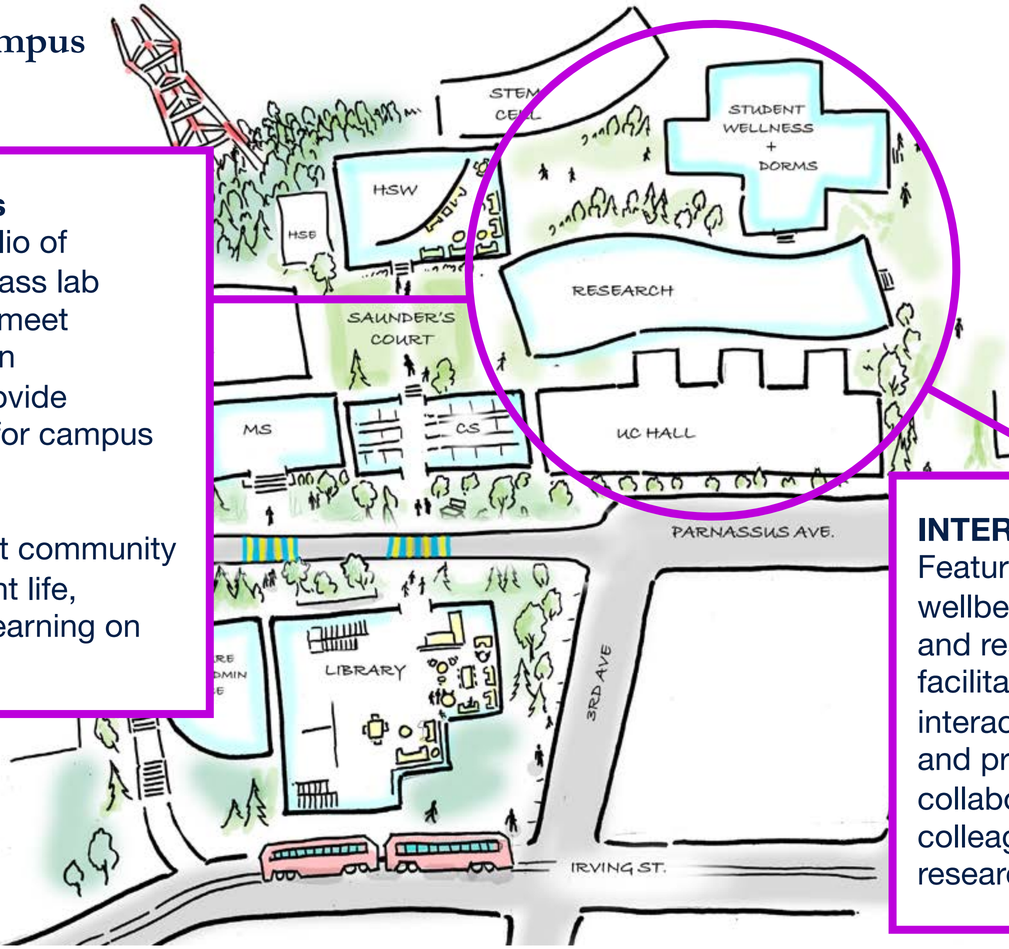
Recommendations

- Establish Designated Academic Areas in clinical buildings (i.e. the new hospital) in support of the education and research missions of UCSF.
- Expand clinical simulation spaces with comprehensive interprofessional skills and simulation capacities that can accommodate all school and UCSF Health needs.

NEW HOSPITAL

A new hospital that meets the growing patient demand for care and the need for designated active teaching and learning areas in clinical care spaces.

Future **Parnassus** Campus



Recommendations

- Revise the portfolio of classroom and class lab spaces to better meet
- modern education requirements. Provide different spaces for campus meeting needs.
- Promote a vibrant community to support student life, well-being, and learning on our campus.

INTERDISCIPLINARY SPACES
Featuring spaces that support wellbeing, student life, housing and research. These spaces facilitate interdisciplinary interactions between schools and programs, and collaborations between colleagues in clinical and research environments.

A place is only as good as the *people* in it.

Pittacus Lore

Educators & Learners at Parnassus

AUBREY
Graduate Student

MUTHAMMA
Research Faculty

BRIANNA
Clinical Student

SAMUEL
Clinical Faculty

Learner: Graduate Student

AUBREY
Pronouns: they/them/theirs
Status: First Year Biomed
Primary Campus: Parnassus
Time on Parnassus: 12 hours
Additional Info:

- Lives in student housing on Mission Bay Campus
- Volunteers at Carry the One Radio to be a part of a broader health and science community on campus

Pain Points

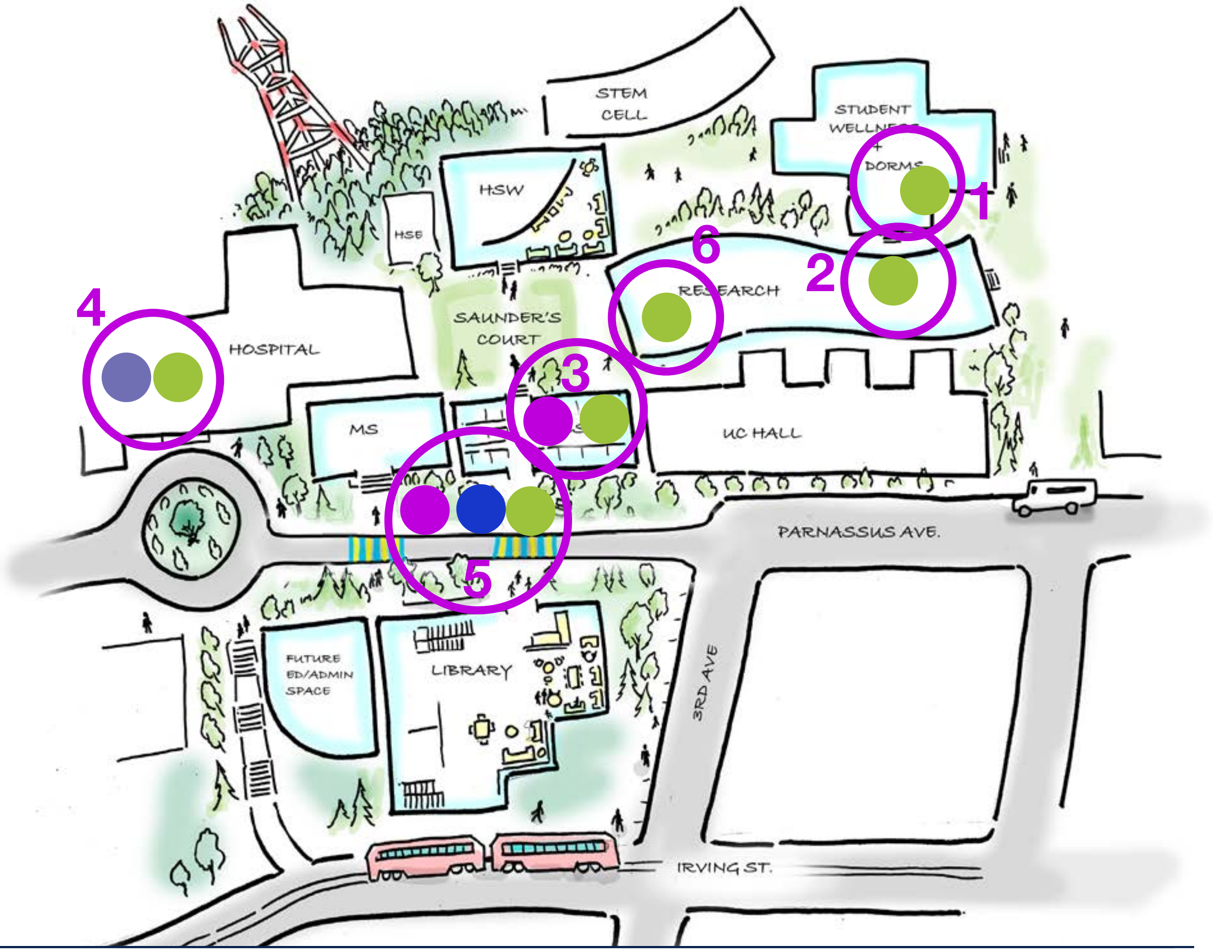
- **Spends the majority of time in lab** and misses student experience
- **Feels siloed** working with only graduate peers and program faculty
- **Hard time finding meeting rooms,** so regularly meets with mentor at Palios
- Has **consistent technology issues** in classrooms and meetings

Needs

- Sense of **community**
- More **clinical problems to solve**
- More formal **interdisciplinary** learning and collaboration
- **Informal settings** to interact with faculty and peers
- **Bring classrooms up to date** with technology

AUBREY
Graduate Student
12 Hour Day

1) **6 am:** Leaves dorm and goes to gym in Student Wellness Center.
Needs Met: Space to create community, health and well-being.
2) **7:05am:** Works in lab with graduate and professional students.
Needs Met: Space for interdisciplinary learning and collaboration.
3) **9:10am:** Meets with Brianna to discuss a new research project.
Needs Met: Space for Interprofessional collaboration.
4) **11:35am:** Meets Samuel regarding collaboration on translational research.
Needs Met: Space for learning in hospitals.
5) **12:05pm:** Checks in with Muthamma and Brianna on the quad and agrees to co-lead a multi-campus research elective.
Needs Met: Modern classrooms with advanced video-conferencing.
6) **1:30pm:** Lab-based classes in research building. Meets with study group.
Needs Met: Modern lab-based teaching spaces and small group learning



Learner: Research Faculty

MUTHAMMA
Pronouns: she/her/hers
Status: Associate Professor
Primary Campus: Mission Bay
Time on Parnassus: 7.5 hours
Additional Info: Serves on two curriculum committees that regularly meet on Parnassus campus

Pain Points

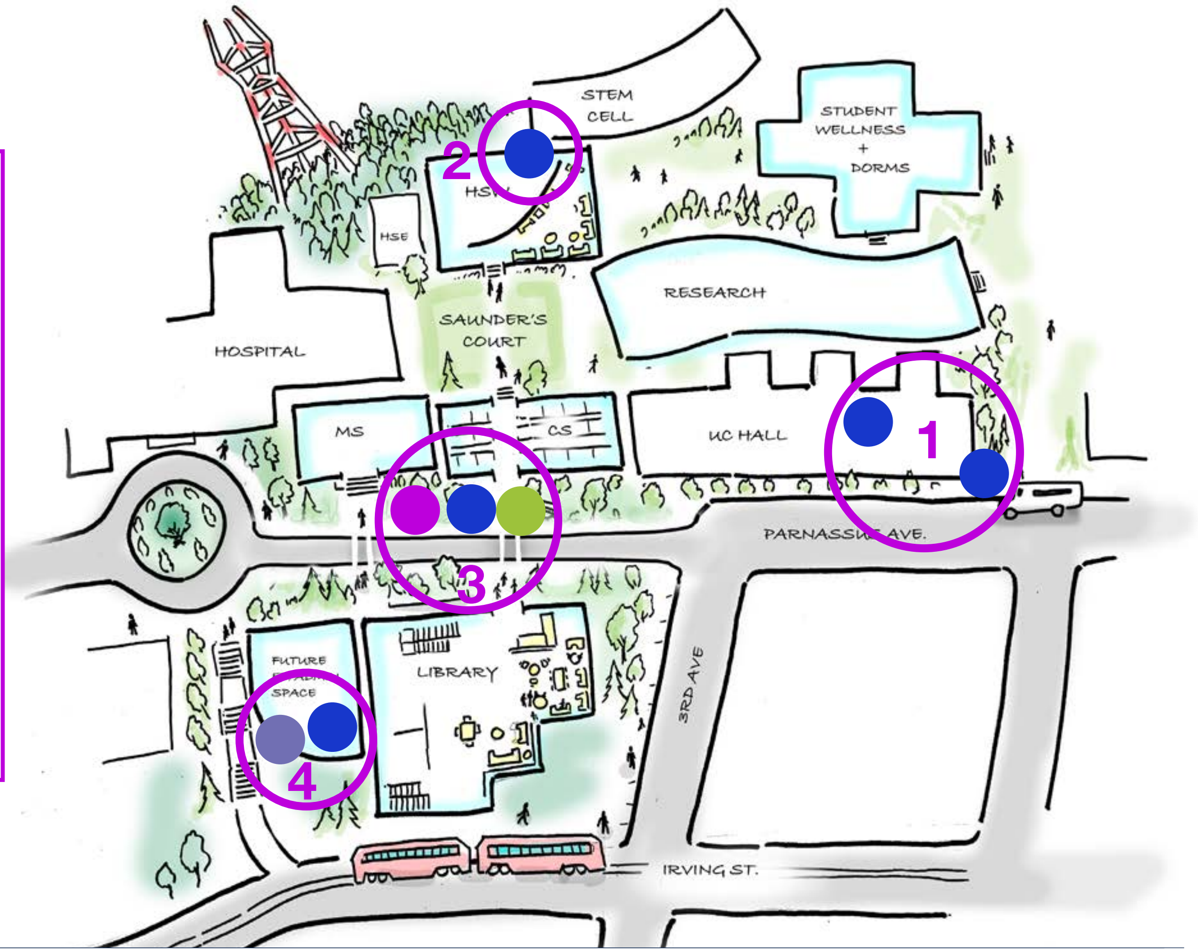
- Always in search of **space to meet and take calls**
- Notices **outdated spaces that lack creativity** during every visit to Parnassus
- Sometimes **gets lost in buildings** when visiting Parnassus
- Consistently has **issues with Zoom** at Parnassus

Needs

- **Update campus** to complement the Mission Bay campus
- More **flexible spaces to informally meet**
- More **art and color** to encourage creativity and inspiration
- Effective **signage**
- Modern classrooms with **advanced video-conferencing**

MUTHAMMA
Research Faculty
7.5 Hour Day

1) 7am: Arrives at Parnassus via shuttle and heads to UC Hall for meeting.
Needs Met: Access to flexible meeting space.
2) 9am: Attend curriculum committee in HSW with remote access to Mission Bay.
Need Met: Advance technology for remote meetings.
3) 12:05pm: Checks in with Brianna and Aubrey on the quad and recruits them to co-lead a multi-campus research elective.
Needs Met: Modern classrooms with advanced video-conferencing.
4) 1pm: Visits the Faculty & Student Success Center to attend a diversity training. Meets up with Samuel afterwards to discuss a research project.
Need Met: Space for faculty training in a creative and inspiring space.



Learner: Clinical Student

BRIANNA
Pronouns: she/her/hers
Status: Second Year Pharmacy
Primary Campus: Parnassus
Time on Parnassus: 10 hours
Additional Info:

- Always in class. When not in class, studies alone and with peers in the Library
- Serves as officer on the Graduate and Professional Student Association

Pain Points

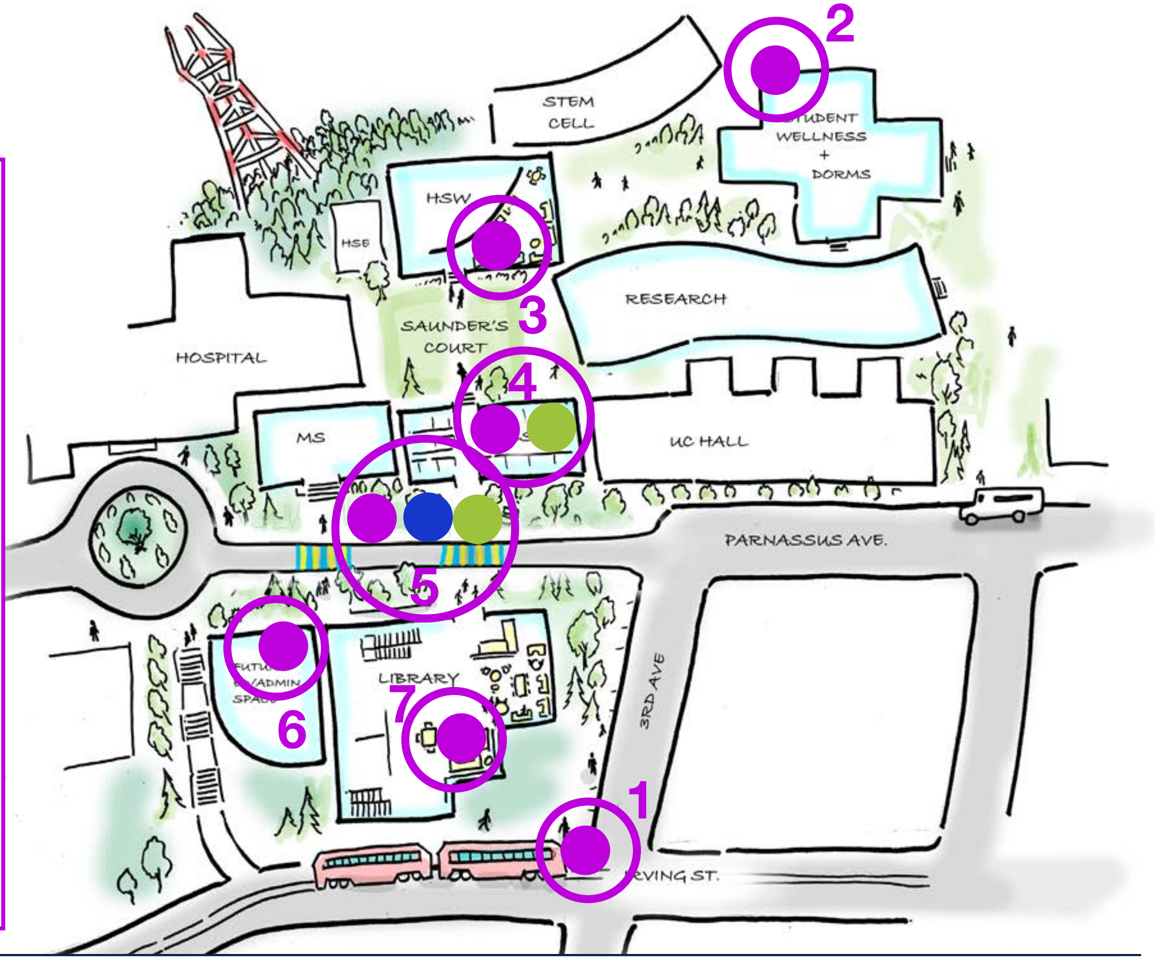
- Has difficulty finding **spaces to meet and work with groups**
- Hard time finding **outlets to charge** laptop and phone
- Wants more **comfortable and welcoming areas** on campus.
- Reluctantly takes **medication for anxiety**, particularly **during exams**

Needs

- **Modular spaces** to get work done individually and collaboratively
- More spaces to **accommodate technology**
- Living room space for **informal learning, community, and study**
- Prioritize and offer more services for **student wellness**

BRIANNA
Clinical Student
10 Hour Day

1, 2) 6:50am: Arrives on Muni to attend morning yoga class in Student Wellness Center.
Needs Met: Space for wellness activities.
3) 8:30am: Eats breakfast at HSW Redwood Terrace before a meeting.
Needs Met: Living room space for informal learning, community, and study on south end of campus.
4) 9:10am: Meets with Aubrey to work on a collaborative research project in the new CSB.
Needs Met: Modern classrooms and access to natural light.
5,6) 12:05pm: Checks in with Muthamma and Aubrey on the quad and agrees to co-lead a multi-campus research elective. Enjoys lunch on the plaza with friends.
Needs Met: Modern classrooms with advanced video-conferencing; community space
7) 1:05pm: Studying for Therapeutics class. Meet-up with other pharmacy students for a consultation with a librarian.
Needs Met: Modular spaces to get work done individually and collaboratively.



Educator: Clinical Faculty

SAMUEL
Pronouns: he/him/his
Status: Professor & Surgeon
Primary Campus: Parnassus
Time on Parnassus: 16 hours
Additional Info:

- Comes in early and leaves late
- Interested in applying new technology to surgical procedures
- 3D prints anatomy models in Makers Lab for teaching

Pain Points

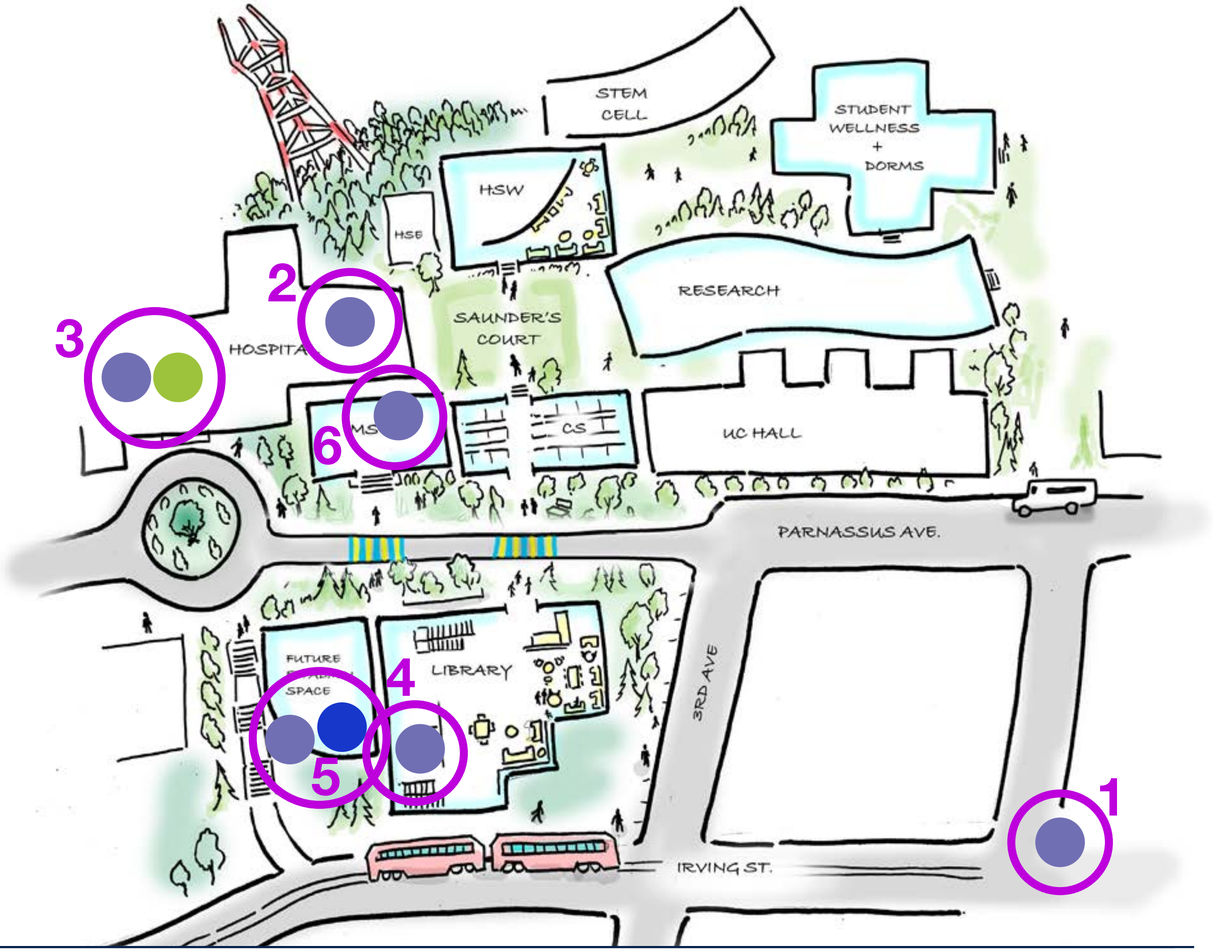
- Few clinicians engaging in **new technology**
- **No surgical skills lab in hospital** for team and student training
- **Minimal collaboration** with simulation experts
- Hard to find **private meeting spaces**
- **Not much interaction** beyond hospital

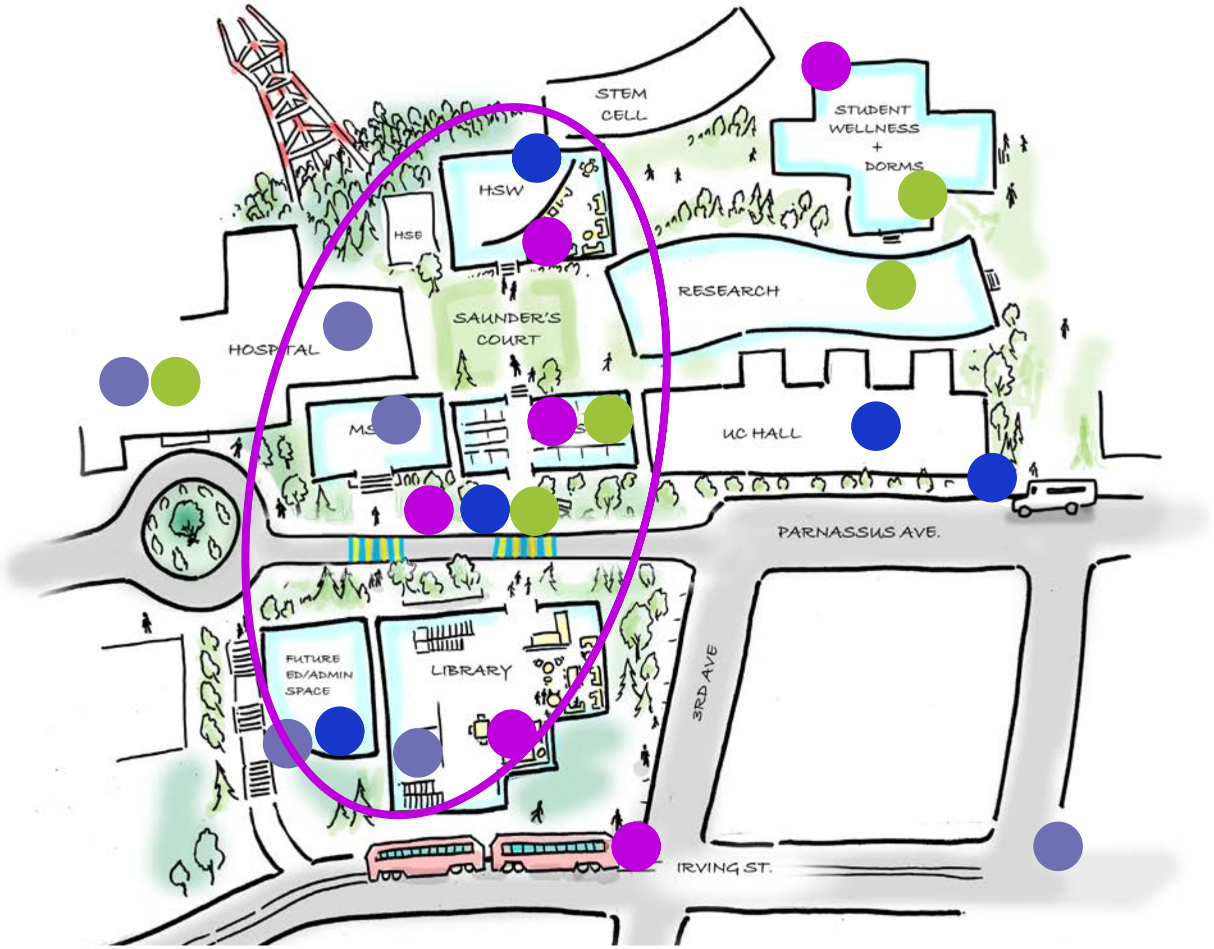
Needs

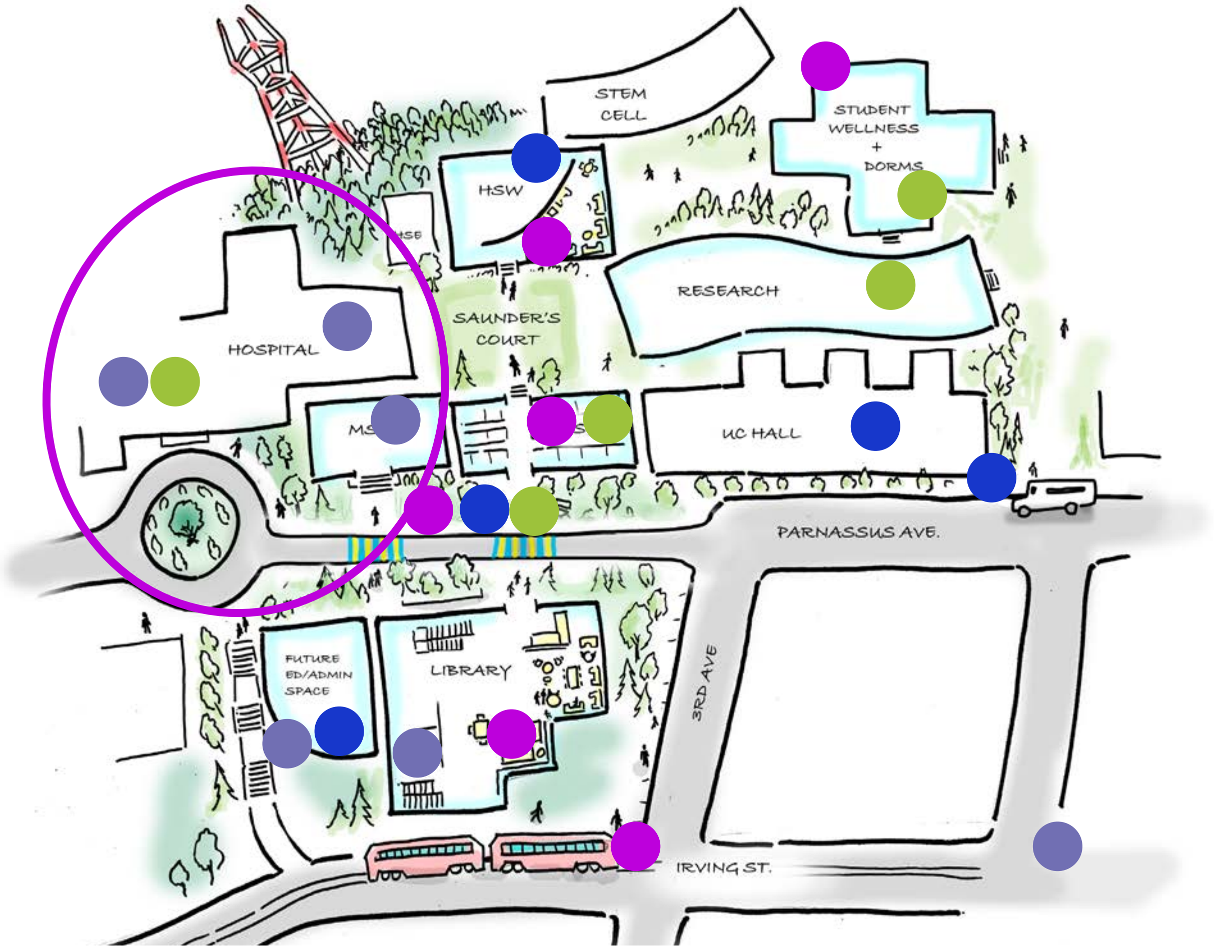
- **Designated academic areas** in hospital
- Greater capacity for **surgical simulation**
- More private and accessible **meeting spaces** throughout campus
- Space to facilitate **interactions outside of the hospital**

SAMUEL
Clinical Faculty
16 Hour Day

1, 2) 5:30am: Arrives on bike and heads to surgical skills simulation space in hospital.
Need Met: Greater capacity for simulation.
3) 11:35am: Meets Aubrey regarding collaboration on translational research.
Needs Met: Space for academic activities in hospitals.
4) 12:30pm: Grabs coffee and runs into colleague before heading to meeting.
Need Met: Space to facilitate interactions outside of the hospital.
5) 1:05pm: Visits the Faculty & Student Success Center to attend a diversity training. Meets up with Muthamma afterwards to discuss a research project.
Need Met: Space for faculty training in a creative and inspiring space. Faculty meeting space.
6) 2:35pm: Meets with residents in surgical skills simulation space for teaching session.
Need Met: Space for academic activities in the hospital.




STEM CELL
STUDENT WELLNESS + DORMS
HSW
HSE
RESEARCH
SAUNDER'S COURT
HOSPITAL
MS
UC HALL
PARNASSUS AVE.
FUTURE ED/ADMIN SPACE
LIBRARY
3RD AVE
IRVING ST.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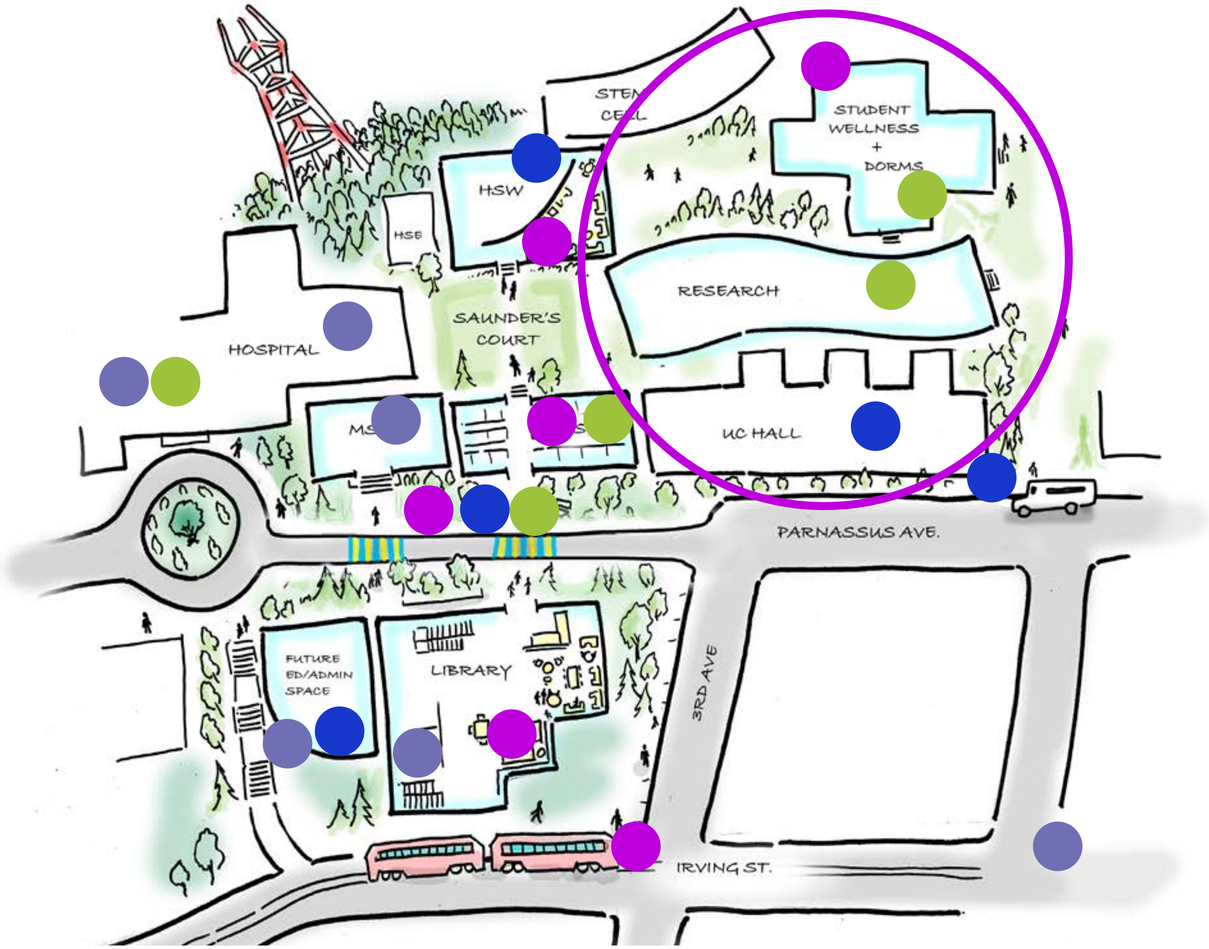
STEM
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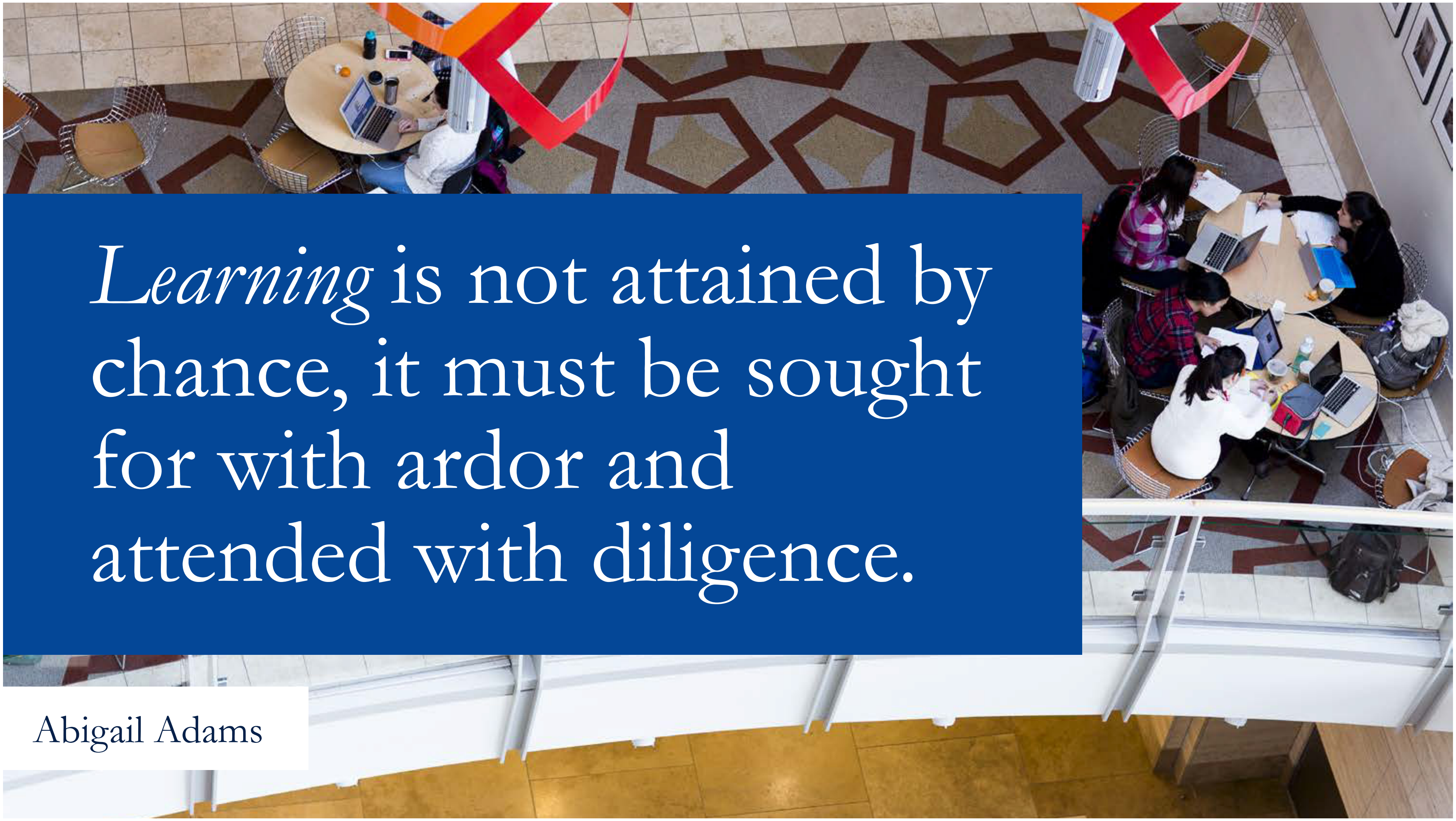


Learning is not attained by chance, it must be sought for with ardor and attended with diligence.

Abigail Adams

Appendices

A. Education Community Proposals
B. Kanbar Center for Simulation – Expansion of Facilities Space Needs
C. Designated Academic Areas
D. Perkins Eastman Classroom Portfolio Recommendations
E. Academic Senate Space Committee Reports
F. ESWG Education Space Guidelines
G. Library Education Space Principles

Space Recommendations

- Create an innovative central Education Core to support active-learning and interprofessional pedagogies.
- Expand clinical simulation spaces with comprehensive interprofessional skills and simulation capacities that can accommodate all school and UCSF Health needs.
- Establish designated academic areas for all in clinical buildings in support of the education and research missions of UCSF.
- Revise the portfolio of classroom and class lab spaces to meet modern education requirements. Provide adequate spaces for campus meeting needs.
- Promote a vibrant community to support student life, well-being, and learning on our campus.

DIGITAL HUB WORKING GROUP REPORT

For the full report with appendices, please see: *https://space.ucsf.edu/sites/g/files/tkssra416/f/wysiwyg/CPHP_Digital_Hub_Working_Group_Report.pdf*

University of California
San Francisco

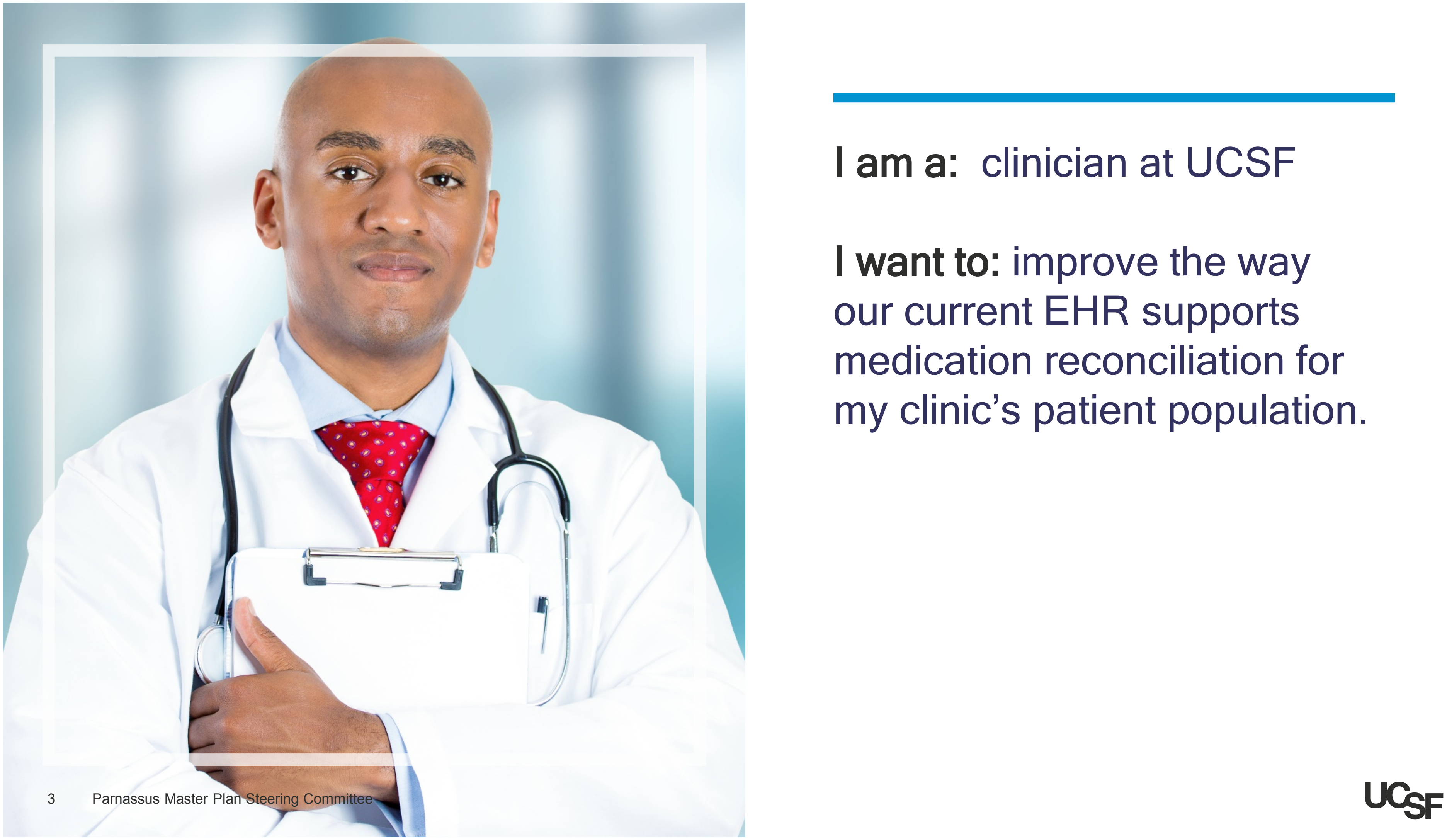
Digital Hub
@ Parnassus Heights

November 27, 2018
Parnassus Master Plan Steering Committee

Julia Adler-Milstein, PhD
Aaron Neinstein, MD
Robert Wachter, MD

I am a: clinician at UCSF

I want to: inform a treatment decision for one of my patients by building an on-demand cohort of similar UC patients to compare.



I am a: clinician at UCSF

I want to: improve the way our current EHR supports medication reconciliation for my clinic's patient population.

I am a: researcher at UCSF

I want to: build a decision support app that delivers real-time risk predictions to UCSF intensive care teams.

I am a: faculty member at Harvard doing cutting-edge robotics research

I want to: move to an institution where I can seamlessly collaborate with other digital health faculty and a health system that will allow me to test and refine my designs.

5 Parnassus Master Plan Steering Committee

I am a: well-established Silicon Valley technology company

I want to: work with an academic health center to co-develop a breakthrough technology that improves population health.

I am a: start-up tech company

I want to: pilot test my new solution that improves OR scheduling and throughput.

I am a: third year Orthopedics resident at UCSF

I want to: work with UCSF digital health faculty to refine and pilot a new clinical decision support algorithm.

UCSF's early successes in Digital Health

	UCSF Bakar Computational Health Sciences Institute	cdhi Center for Digital Health Innovation at UCSF	UCSF Health Informatics	CTSI at UCSF	UCSF Department of Medicine Center for Clinical Informatics and Improvement Research	UCSF Clinical Innovation Center	UCSF Innovation Ventures	Enterprise Information & Analytics
Successes	Information Commons UC Data Warehouse	GE voalte SAMSUNG TIDEPOOL	Epic EHR Clinical Decision Support Telehealth	Eureka Learning Health System Projects De-ID'd Data	The Office of the National Coordinator for Health Information Technology AMIA AHRQ	Inside Out Accelerator	Catalyst Program Entrepren. Center	Clinical Data Request Process Ops & Clinical Dashboards
Expertise	• Bioinformatics • Omics • Data Science	• Data Science • Software Development • Clinical Informatics • Commercial Partnerships • Early-Stage Innovation	• Clinical Informatics • Clinical Analytics • Operations	• Clinical Research	• Health Informatics Research • Health Informatics Policy	• Implementation Science • Service Design	• Licensing • Intellectual Property • Partnerships	• Analytics • Dashboards

… and much more within Departments




Stefano Bini, MD

Department of
Orthopedic Surgery

HealthLoop

Gabby Schmajuk, MD

Jinoos Yazdany, MD

Department of Medicine

Patient Reported Outcomes
in Rheumatology

Xiao Hu, PhD

School of Nursing

SuperAlarm

Our digital groups are geographically dispersed…

Center for Clinical Informatics & Improvement Research

Clinical Innovation Center

Enterprise Information & Analytics

Health Informatics & Clinical Systems

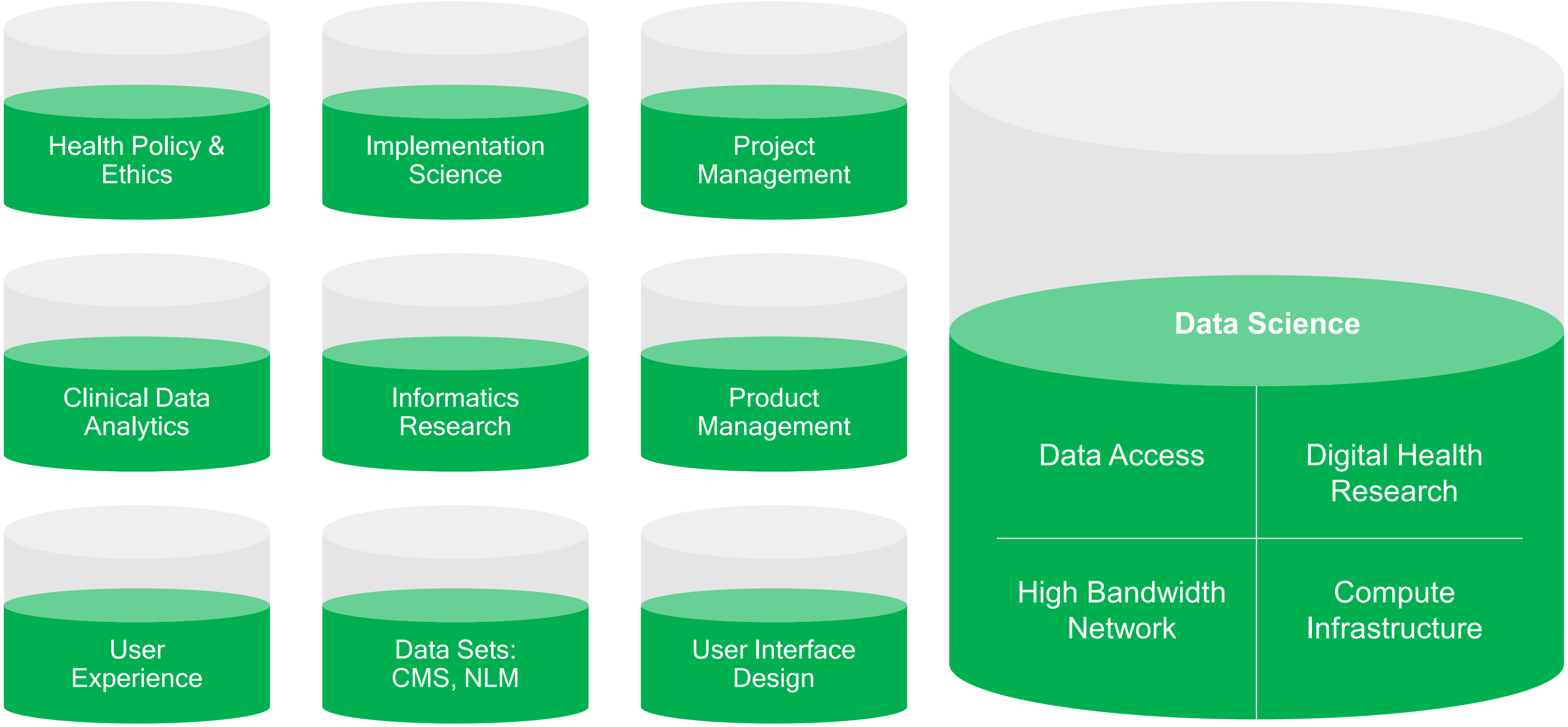
Bakar Computational Health Sciences Institute

Center for Digital Health Innovation

Clinical & Translational Science Institute

Innovation Ventures

… and we have key resource gaps



Health Policy & Ethics

Implementation Science

Project Management

Clinical Data Analytics

Informatics Research

Product Management

User Experience

Data Sets: CMS, NLM

User Interface Design

Data Science

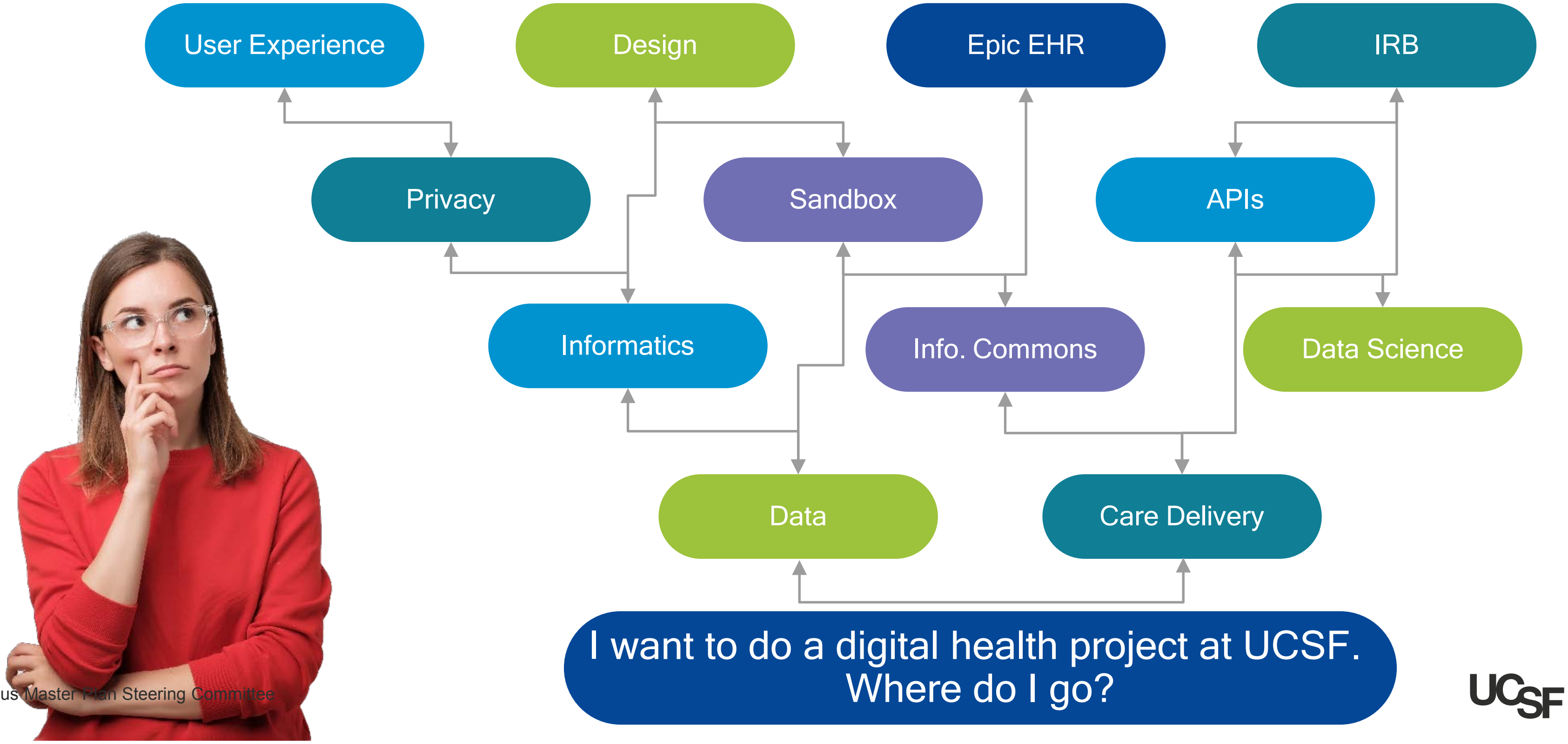
Data Access

Digital Health Research

High Bandwidth Network

Compute Infrastructure

… as well as poorly coordinated resources, leading to frustrated UCSF faculty and external partners



User Experience

Design

Epic EHR

IRB

Privacy

Sandbox

APIs

Informatics

Info. Commons

Data Science

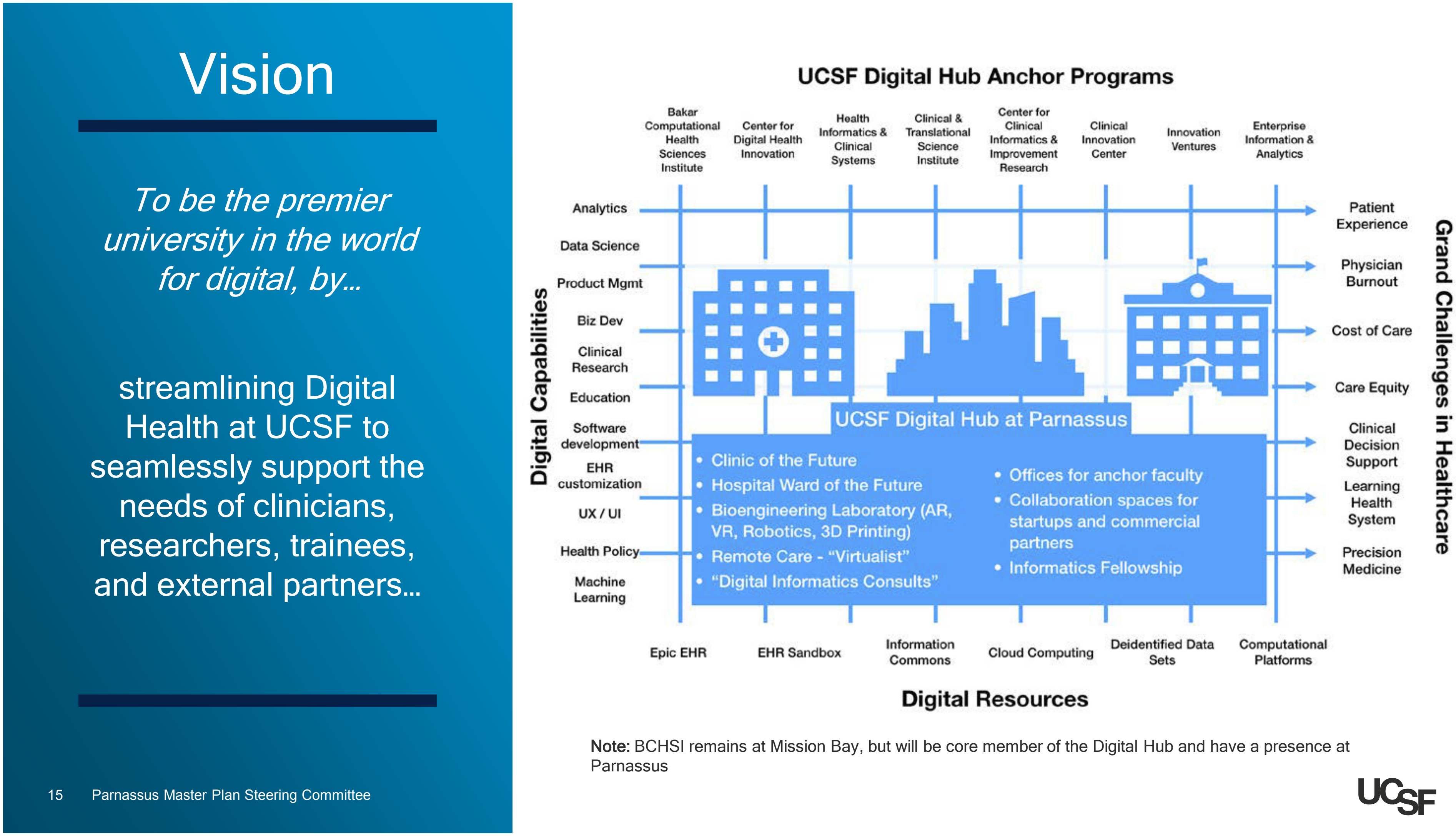
Data

Care Delivery

I want to do a digital health project at UCSF. Where do I go?

UCSF has an opportunity to be *the* premier university for digital…

- … care
- … education
- … innovation
- … research
- … entrepreneurship
- … partnerships



Vision

To be the premier university in the world for digital, by…

streamlining Digital Health at UCSF to seamlessly support the needs of clinicians, researchers, trainees, and external partners…

15 Parnassus Master Plan Steering Committee

UCSF Digital Hub Anchor Programs

- Bakar Computational Health Sciences Institute
- Center for Digital Health Innovation
- Health Informatics & Clinical Systems
- Clinical & Translational Science Institute
- Center for Clinical Informatics & Improvement Research
- Clinical Innovation Center
- Innovation Ventures
- Enterprise Information & Analytics

Digital Capabilities

- Analytics
- Data Science
- Product Mgmt
- Biz Dev
- Clinical Research
- Education
- Software development
- EHR customization
- UX / UI
- Health Policy
- Machine Learning

Grand Challenges in Healthcare

- Patient Experience
- Physician Burnout
- Cost of Care
- Care Equity
- Clinical Decision Support
- Learning Health System
- Precision Medicine

UCSF Digital Hub at Parnassus

- Clinic of the Future
- Hospital Ward of the Future
- Bioengineering Laboratory (AR, VR, Robotics, 3D Printing)
- Remote Care - "Virtualist"
- "Digital Informatics Consults"
- Offices for anchor faculty
- Collaboration spaces for startups and commercial partners
- Informatics Fellowship

Digital Resources

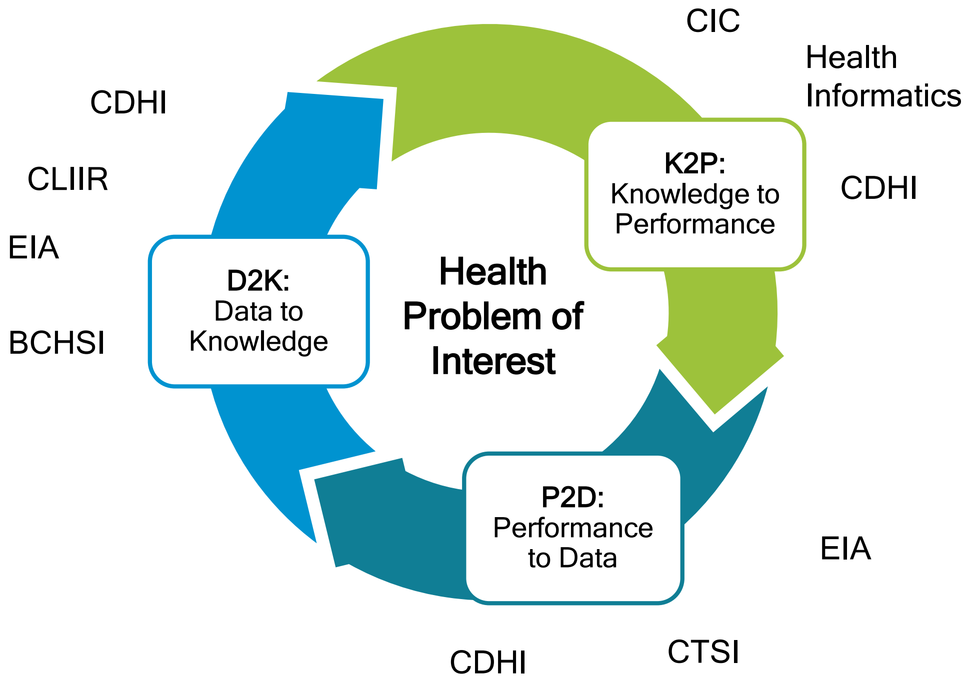
- Epic EHR
- EHR Sandbox
- Information Commons
- Cloud Computing
- Deidentified Data Sets
- Computational Platforms

Note: BCHSI remains at Mission Bay, but will be core member of the Digital Hub and have a presence at Parnassus

Vision

… allowing current UCSF Digital Health assets to work together to deliver a true Learning Health System.

Learning Health Cycle



*With engagement of policy, ethics, patient engagement, disparities groups

UCSF Digital Hub: Four Core Areas

Entrepreneurship & Innovation

Simulation & Testing

Collaboration & Resources

Education & Training

Examples

Accelerator for Internal Ideas
Entrepreneurs-in-Residence
Co-locate with Industry Partners

Basic & Translational Digital Research

Implem. Science: Ward of the Future

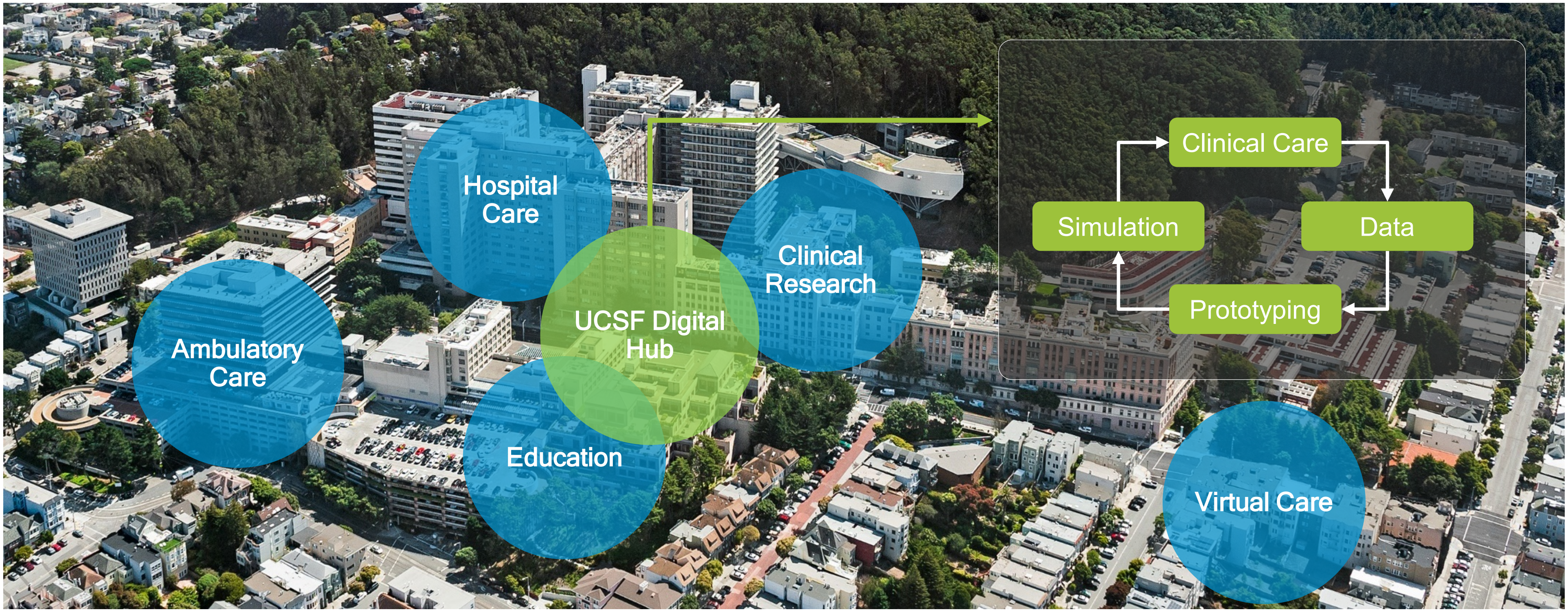
One-Stop Shop for Consultations:
IRB, Privacy, Legal, Risk,
Security, Design, EHR Integration
Product Management

Clinical Informatics Fellowship Program

Public-Facing Digital Health "Exploratorium"

UCSF

UCSF Digital Hub belongs at Parnassus Heights



UCSF Digital Hub – Governance

- Broad representation from community of digital entities and core users (e.g. clinical departments)
- Federated model: maintain autonomy of constituent units while emphasizing cross-cutting projects, communication (between silos and externally-facing), convening, education, collaboratory
- Decision Making & Authority
  - $1-2M/yr, staff to purpose, 3-5 staff to start
  - Focused on strategic planning, space mgmt., building & managing cross-cutting projects

Unified space @ Parnassus Heights

New federated program, strategy and governance

Appendix

UCSF
University of California
San Francisco

Working Group Membership

Julia Adler-Milstein

Aaron Neinstein

Steven Bin

Stefano Bini

Rachael Callcut

David Dobbs

Xiao Hu

Carolyn Jasik

Elsbeth Kalenderian

Marc Kohli

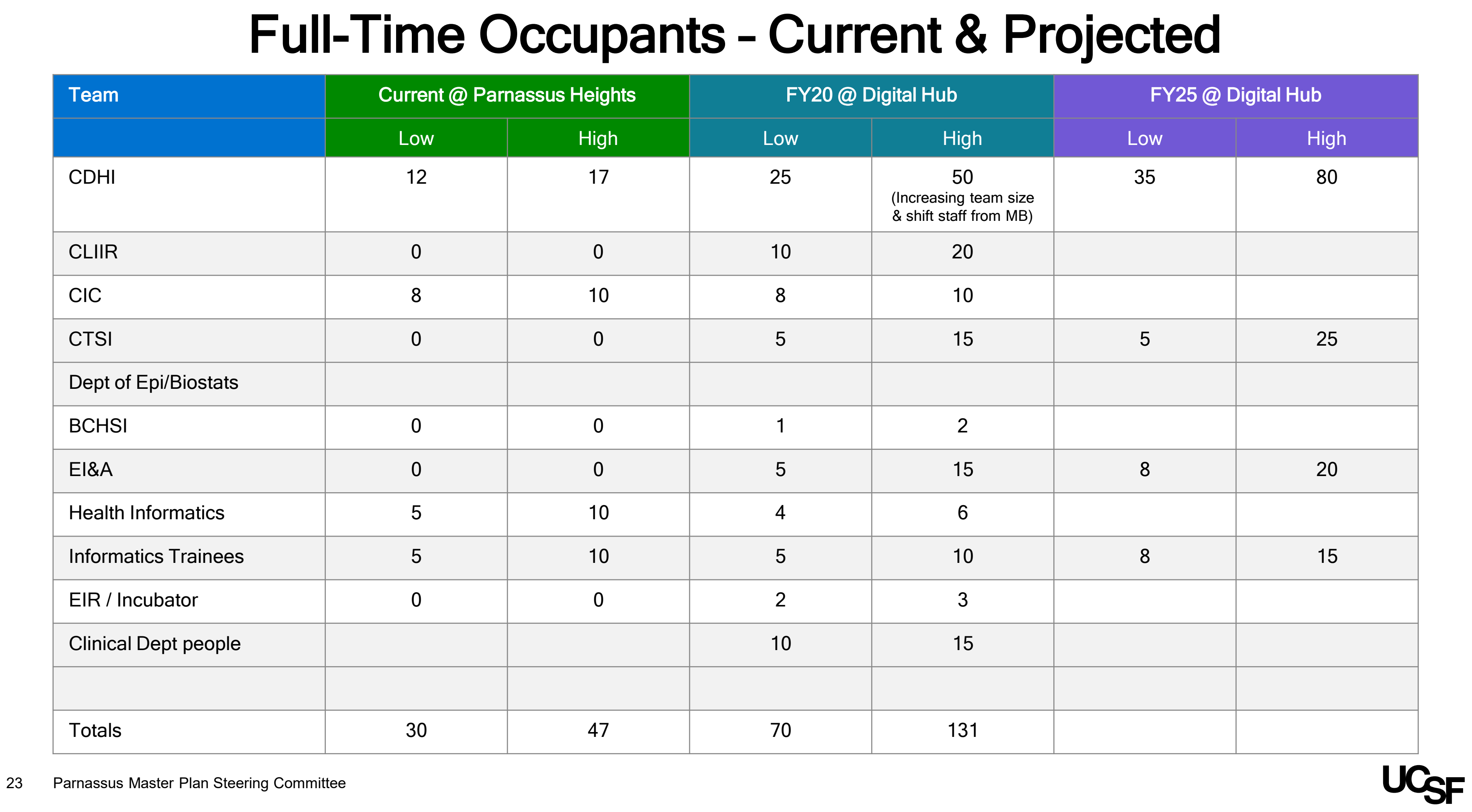
Michael Lesh

Chandler Mayfield

Rosa Rodriguez-Monguio

Cara Fladd

Sharon Priest



Full-Time Occupants - Current & Projected

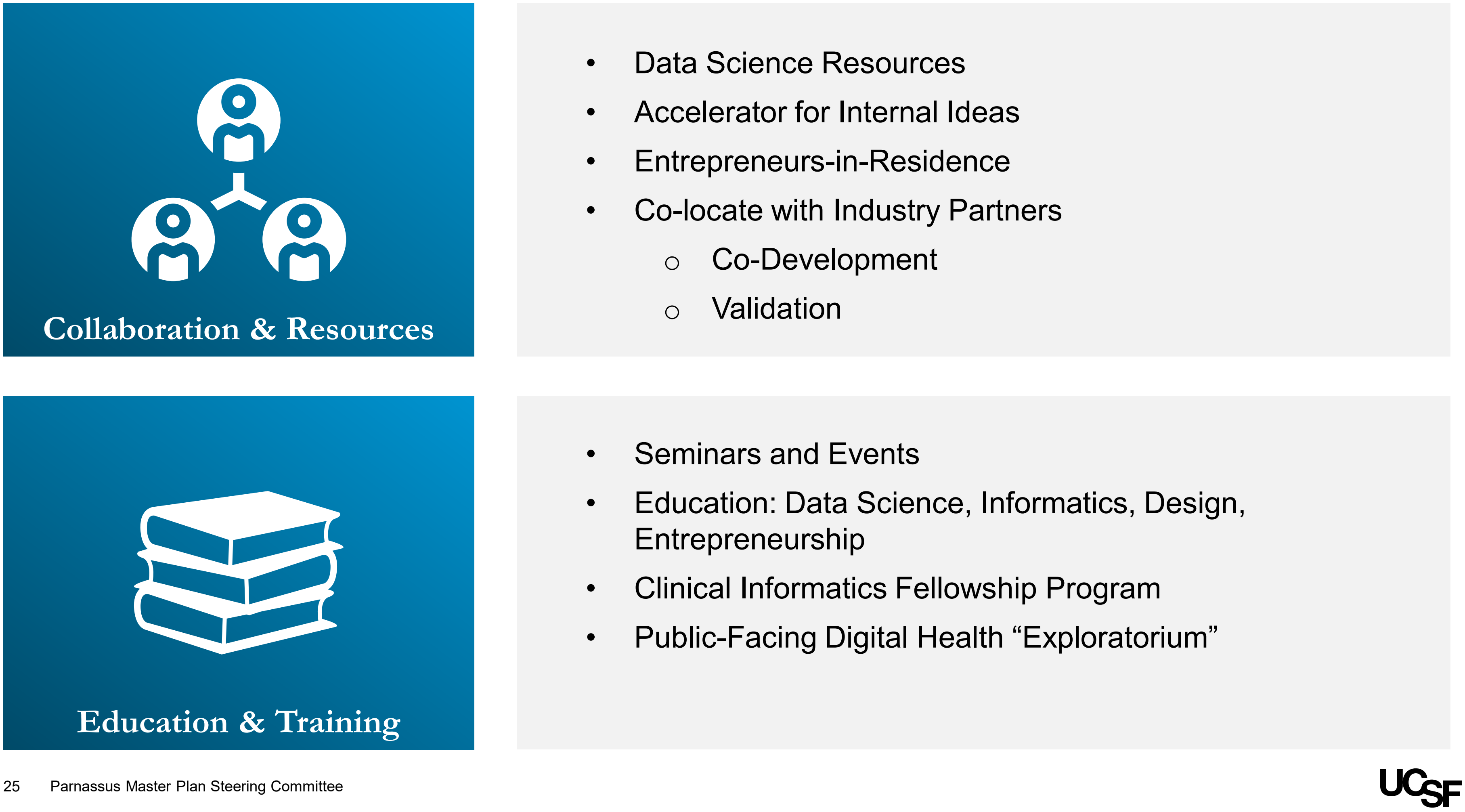
Team	Current @ Parnassus Heights		FY20 @ Digital Hub		FY25 @ Digital Hub	
	Low	High	Low	High	Low	High
CDHI	12	17	25	50 (Increasing team size & shift staff from MB)	35	80
CLIIR	0	0	10	20		
CIC	8	10	8	10		
CTSI	0	0	5	15	5	25
Dept of Epi/Biostats						
BCHSI	0	0	1	2		
EI&A	0	0	5	15	8	20
Health Informatics	5	10	4	6		
Informatics Trainees	5	10	5	10	8	15
EIR / Incubator	0	0	2	3		
Clinical Dept people			10	15		
Totals	30	47	70	131		

Entrepreneurship & Innovation

- Collaborative Environment
    - Attract and recruit top talent
    - Strengthen synergies of existing UCSF people and assets
- One Stop Shop for Consultations: IRB, Privacy, Legal, Risk, Security, Design, UX, Product Management, EHR

Simulation & Testing

- Basic Digital Research: Utilization of large data sets with ML & AI
- Translational Digital Research: Rapid design and prototyping
- Implementation Science: Laboratory Practice. Ward of the Future. Hospital at Home
- Post-Market Digital Surveillance



Collaboration & Resources

- Data Science Resources
- Accelerator for Internal Ideas
- Entrepreneurs-in-Residence
- Co-locate with Industry Partners
  - Co-Development
  - Validation

Education & Training

- Seminars and Events
- Education: Data Science, Informatics, Design, Entrepreneurship
- Clinical Informatics Fellowship Program
- Public-Facing Digital Health “Exploratorium”

UCSF

COLABS WORKING GROUP REPORT

For the full report with appendices, please see: *https://space.ucsf.edu/sites/g/files/tkssra416/f/wysiwyg/CPHP_CRL-CoLabs_Report.pdf*

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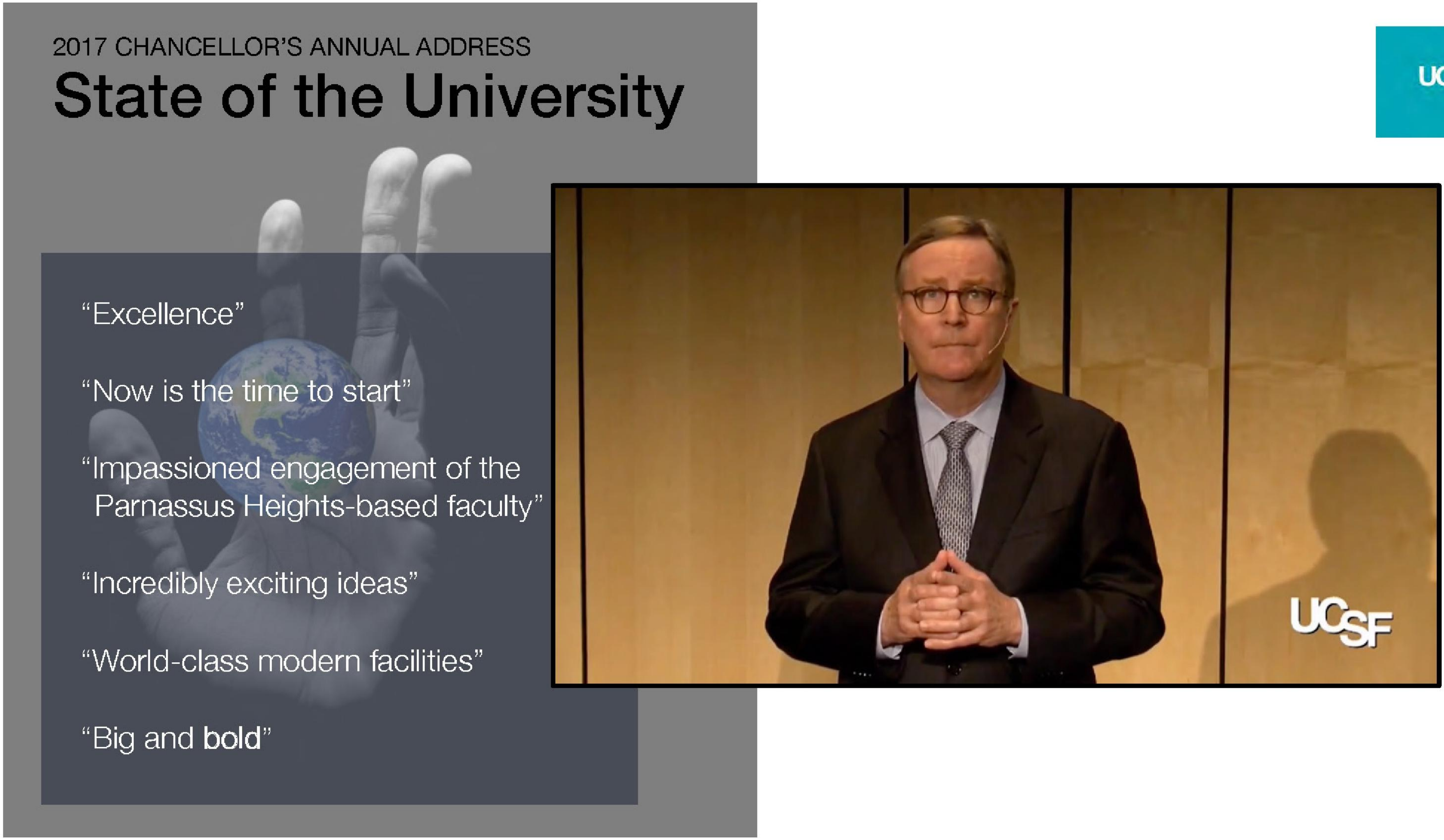
San Francisco

Central Research Labs (CRL)

PLAN PROPOSAL

CRL Subgroup Report to the
Parnassus Master Planning Steering Committee

April 27, 2018



2017 CHANCELLOR'S ANNUAL ADDRESS

State of the University

"Excellence"

"Now is the time to start"

"Impassioned engagement of the Parnassus Heights-based faculty"

"Incredibly exciting ideas"

"World-class modern facilities"

"Big and **bold**"

CRL SUBGROUP COMMITTEE

Mandate

- Design a **new model** for central lab resources
  - Capitalizes on **critical personnel** and **cutting-edge methods & technologies**
  - Drives **collaboration** across disciplines
- Produce high level plans for **contiguous space** housing all CRL components
  - Integrates core activities into one centralized place, *e.g.* sample processing, high-dimensional imaging, cell separation/sorting, genomic analysis
- Maximize **impact & engagement**
- Launch within a **2-year timeline**

CRL SUBGROUP COMMITTEE

Membership and Process


NADAV AHITUV, PHD
Bioengineering & Therapeutics


VINCENT CHAN, PHD
Pathology


ERIC CHOW, PHD
Biochemistry & Biophysics


LINDSEY CRISWELL, MD, MPH
Medicine


DAVID ERLE, MD
Medicine


DIANE KAY
Space & Capital Planning


MAX KRUMMEL, PHD
Pathology


TIPPI MACKENZIE, MD
Surgery


ALEX MARSON, MD, PHD
Microbiology and Immunology


MICHAEL MCMANUS, PHD
Diabetes Center


PATTI MITCHELL
Capital Programs


ELIZABETH SINCLAIR, PHD
Research Resource Program


MATTHEW SPITZER, PHD
Microbiology and Immunology


SAUL VILLEDA, PHD
Anatomy


KATHERINE YANG, PHARMD, MPH
Clinical Pharmacy


JIMMIE YE, PHD
Epidemiology & Biostatistics


KARIN WONG
Space Strategy

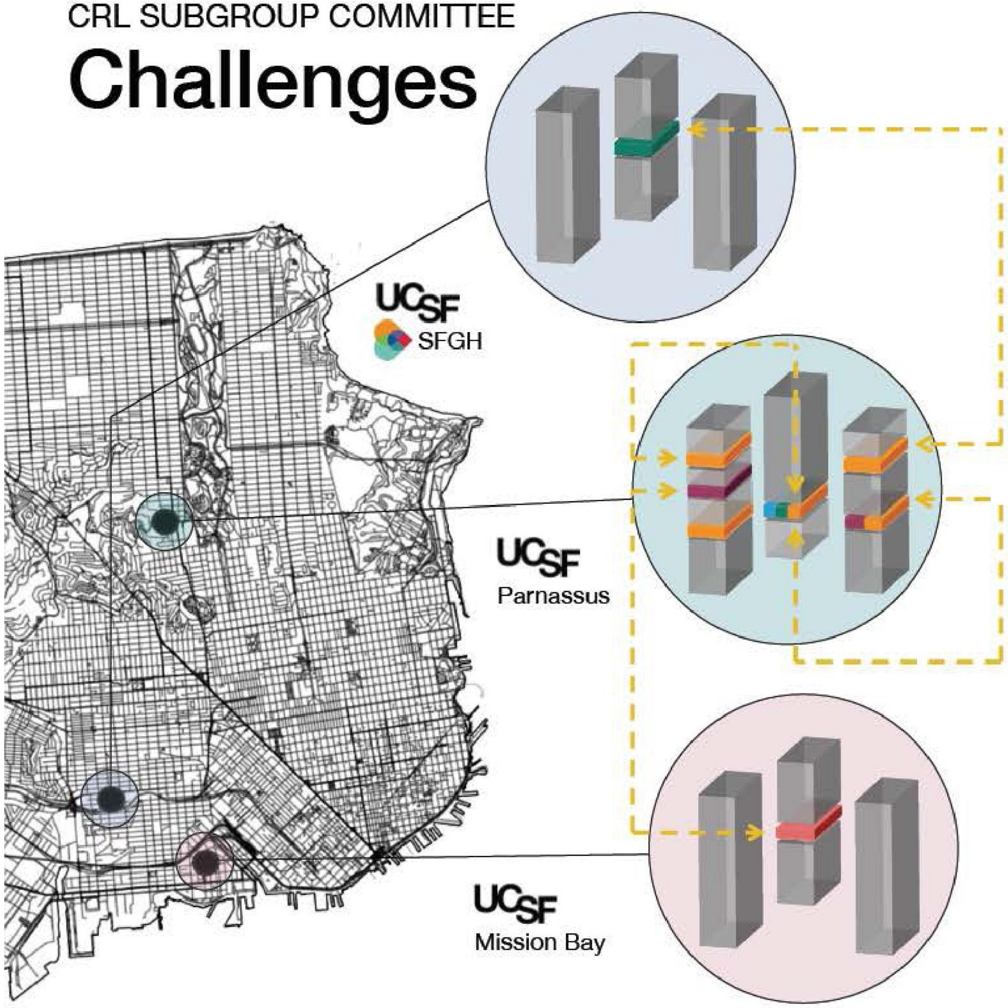

HUGH COTTER, AIA
Oculus Architects, Inc.

SINCE JANUARY 2018:

- 5 committee meetings
- 7 task forces
- Website
- Email announcements
- Existing facility inventory
- Site visits

CRL SUBGROUP COMMITTEE

Challenges



- **Fragmented** facilities
  - Difficult to find and use cores
  - Limits collaboration and synergies
  - Inefficient use of space and equipment
- **Lagging investments** in transformative methods & technologies
  - Data sciences
  - Genomics
- **Unreliable** long-term financial support
  - Inefficiencies
  - Inadequate institutional support for cores (9% versus 27% nationally)
- **Retention** of world-class staff

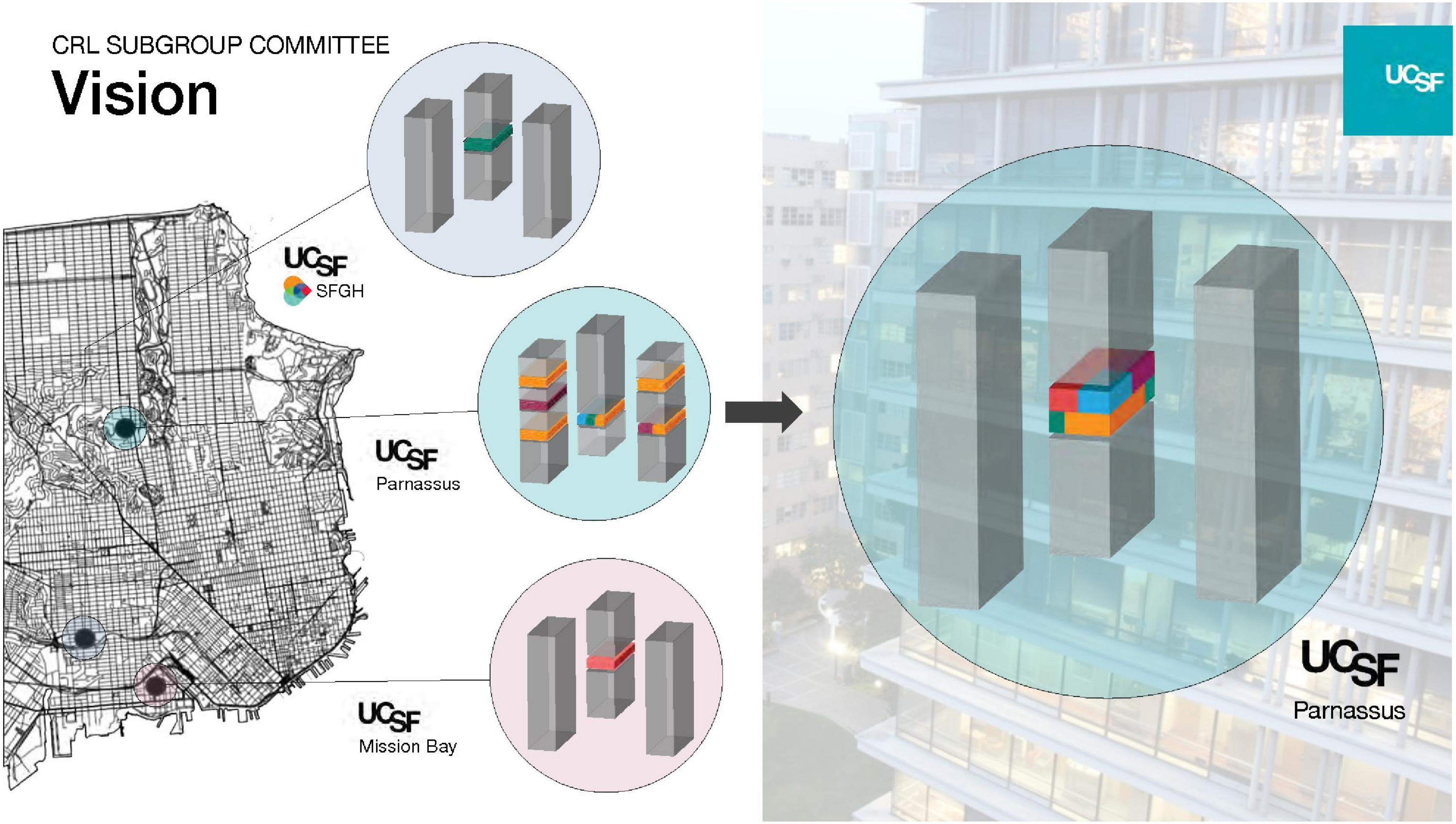
CRL SUBGROUP COMMITTEE

Goals & Opportunities

- **Rejuvenating Parnassus**
  Complete promptly a **highly-visible model for developing big and bold initiatives** at Parnassus
- **Building on Parnassus' strength**
  Emphasize **Parnassus' unique strengths** by exploring the biological basis of disease in transformative new ways and by complementing resources available elsewhere
- **Fostering collaboration**
  Enhance a sense of community by moving beyond the traditional "core" model and facilitating the **communization of resources, expertise, and data**
- **Creating excellence, responsiveness, and sustainability**
  Recruit and retain **excellent people who are engaged and nimble** in recognizing emerging opportunities, and who can promote the sharing of ideas and tools developed in individual labs
- **Supporting education and training**

CRL SUBGROUP COMMITTEE

Vision



CRL SUBGROUP COMMITTEE

Design Concept

COLABS

AT PARNASSUS

The “C” is a multi-faceted representation of CoLabs: as a logomark; as an interconnected space of shared labs; as an open “ring of collaboration” that will mirror the eventual rejuvenation and space concept at Parnassus.

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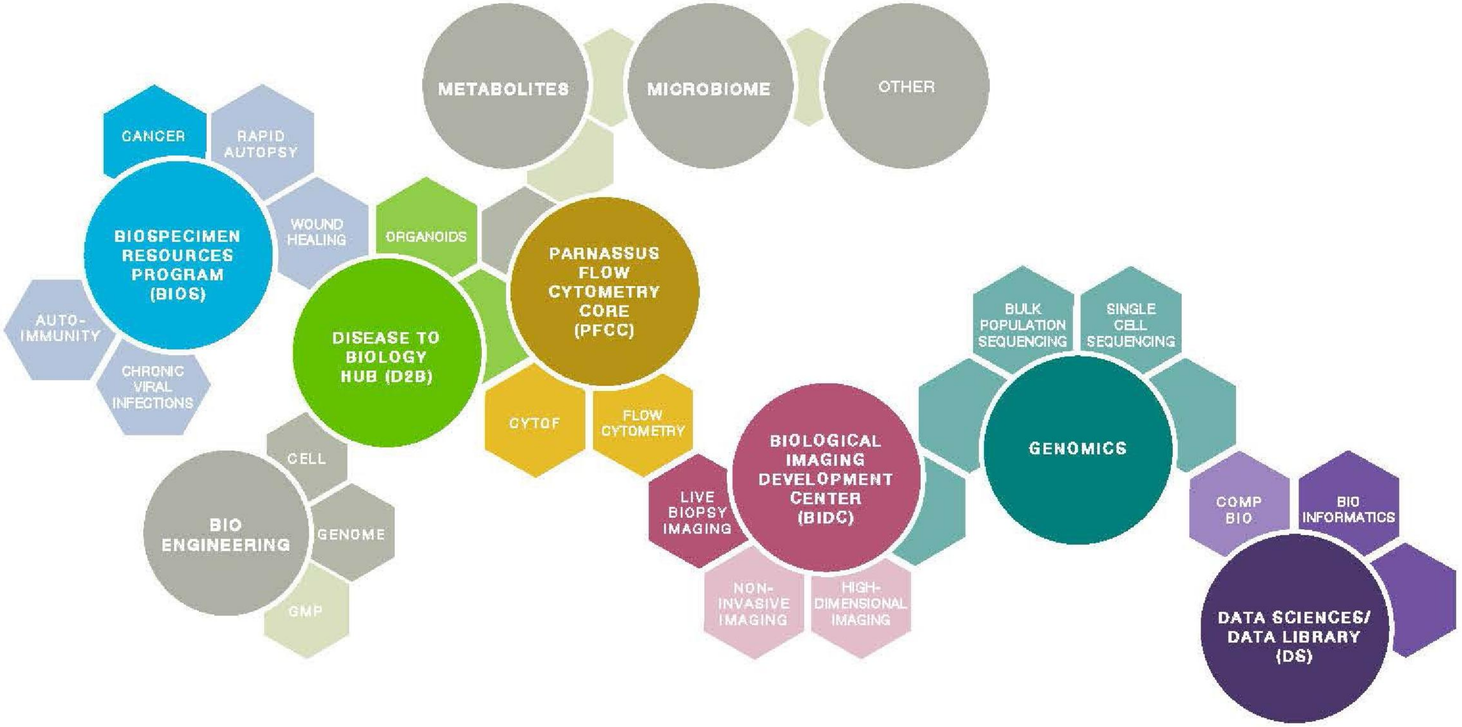
CoLabs at Parnassus



METABOLITES

MICROBIOME

OTHER

CANCER

RAPID AUTOPSY

BIOSPECIMEN RESOURCES PROGRAM (BIOS)

WOUND HEALING

AUTO-IMMUNITY

CHRONIC VIRAL INFECTIONS

ORGANOIDS

DISEASE TO BIOLOGY HUB (D2B)

PARNASSUS FLOW CYTOMETRY CORE (PFCC)

CYTOF

FLOW CYTOMETRY

CELL

BIO ENGINEERING

GENOME

GMP

LIVE BIOPSY IMAGING

BIOLOGICAL IMAGING DEVELOPMENT CENTER (BIDC)

NON-INVASIVE IMAGING

HIGH-DIMENSIONAL IMAGING

BULK POPULATION SEQUENCING

SINGLE CELL SEQUENCING

GENOMICS

COMP BIO

BIO INFORMATICS

DATA SCIENCES/ DATA LIBRARY (DS)

UCSF University of California San Francisco

COLABS AT PARNASSUS

COLABS AT PARNASSUS

Benefits to Parnassus and UCSF

Dramatically lower barriers for interdisciplinary collaborations

- Allows access to sophisticated approaches essential for cutting-edge science
- Especially important for early stage investigators and clinical-scientists

Drive more efficient use of costly sharable resources

- Reduce costs and need for space in other Parnassus projects that will follow
- Data sharing ensures maximizes benefits of patient-based research

Reduce glaring inequities between Parnassus and MB

- Improve Parnassus morale and build excitement about the future of Parnassus
- Decrease need to travel to MB for important services

Enable a new financial model

- Attract a broader range of funders
- Leverage large project funding to benefit the whole community

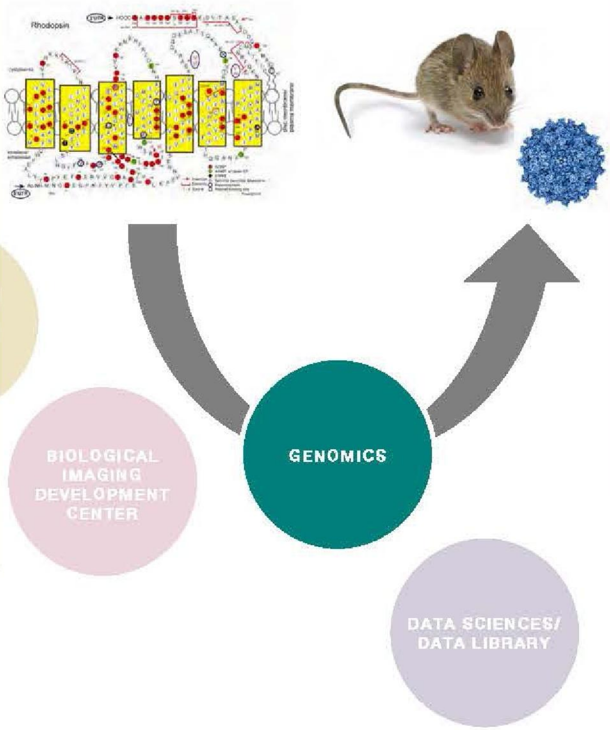
Provide a visible center for researchers at Parnassus

- Build a sense of community
- Provide new facilities and personnel for training and innovation

COLABS AT PARNASSUS

Single CoLab Use Case

Doug Gould, PhD and **Scott Oakes, MD** want to use gene editing to cure inherited forms of blindness. They are looking for mouse models for assessing the efficacy of editing a relevant target gene in the retina. Doug and Scott consult with Michael McManus who provides advice about suitable tools. They can develop the required transgene constructs in their own labs or travel to the MB Cell and Genome Engineering Core to work with them. For generation of transgenic mice from ES cells, Parnassus investigators can use either the Gladstone core or an off-campus service provider. Mice are then shipped to Doug and Scott, who genotype them and deliver some mice to the LARC Rederivation Core for preservation. Therapeutic CRISPR AAVs can be produced with help from the UCSF ViraCore.



SINGLE COLAB PROJECT

Step 1. Doug and Scott work with the Genomics **CoLab** director to design the experiment, offering new technologies that raise impact and often save both time and money.

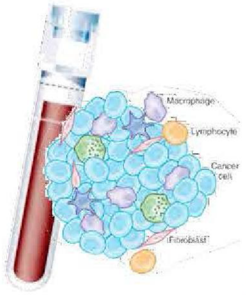
Step 2. The Genomics **CoLab** performs ES gene targeting, microinjects ES cells, helps genotype animals and offers a phenotyping service via UCD liaison.

Step 3. The Genomics **CoLab** biobanks locally or with a UCD liaison.

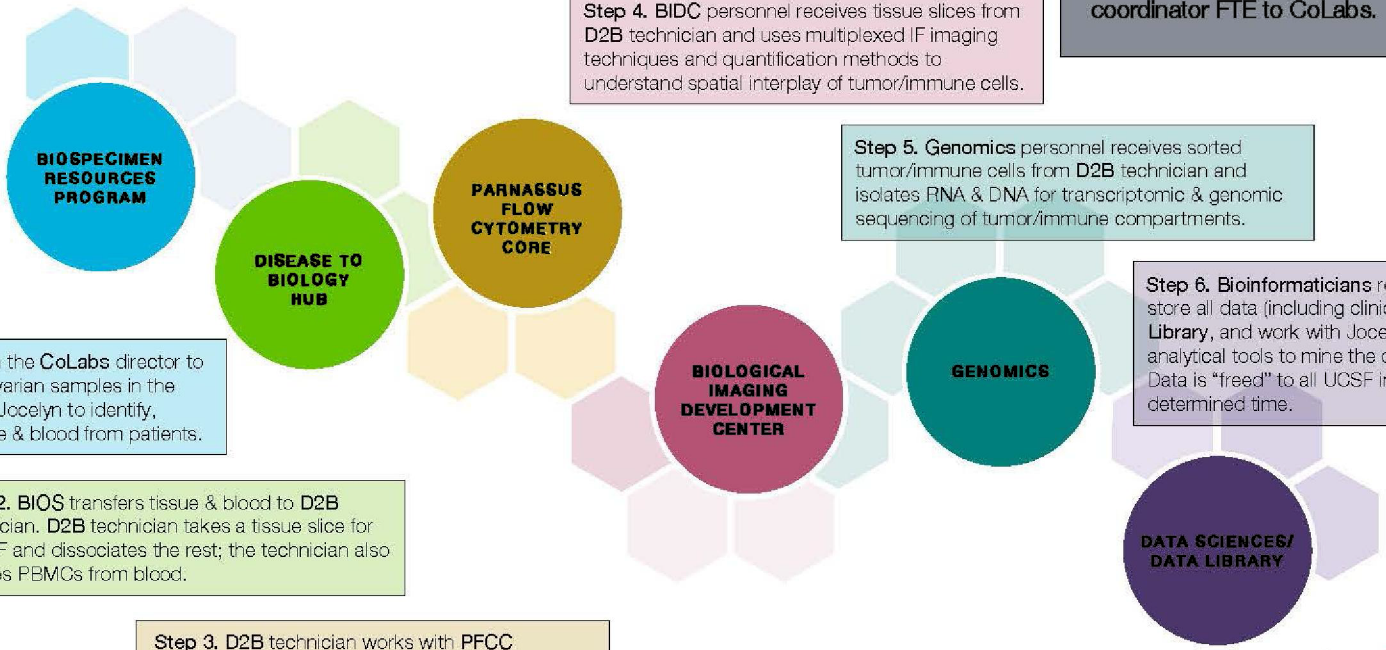
Step 4. The Genomics **CoLab** produces the CRISPR AAV construct and coordinates with the ViraCore to produce therapeutic AAV.

COLABS AT PARNASSUS

CoLabs Projects



Jocelyn Chapman, MD is keen to understand the immune diversity of gynecological tumors that she is obtaining in the clinic. Like many clinician-scientists, she does not have her own lab with the capacity to undertake this work. Instead, she is able to contribute tumor and blood specimens and a clinical research coordinator FTE to CoLabs.



COLABS PROJECT

Step 1. Jocelyn works with the **CoLabs** director to define pilot project of 12 ovarian samples in the pipeline. **BIOS** works with Jocelyn to identify, consent, and acquire tissue & blood from patients.

Step 2. BIOS transfers tissue & blood to **D2B** technician. **D2B** technician takes a tissue slice for H&E/IF and dissociates the rest; the technician also isolates PBMCs from blood.

Step 3. D2B technician works with **PFCC** personnel to reserve FACS, sort tumor/immune cells for multi-omic analyses, and runs several stain panels to understand the immune composition.

Step 4. BIDC personnel receives tissue slices from **D2B** technician and uses multiplexed IF imaging techniques and quantification methods to understand spatial interplay of tumor/immune cells.

Step 5. Genomics personnel receives sorted tumor/immune cells from **D2B** technician and isolates RNA & DNA for transcriptomic & genomic sequencing of tumor/immune compartments.

Step 6. Bioinformaticians receive, curate, and store all data (including clinical) in the **UCSF Data Library**, and work with Jocelyn to develop analytical tools to mine the ovarian tumor dataset. Data is "freed" to all UCSF investigators after set determined time.

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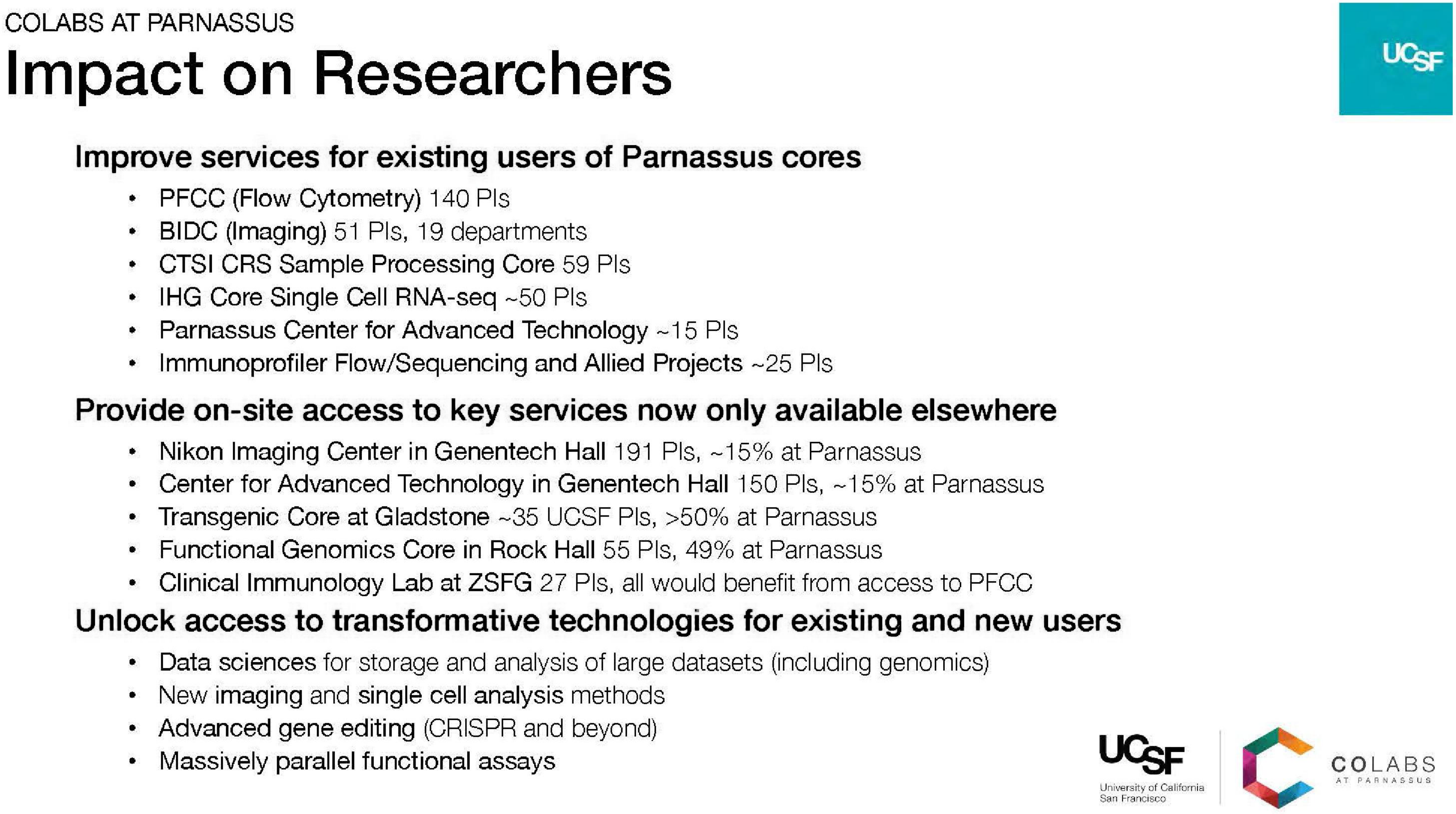
University of California
San Francisco

COLABS
AT PARNASSUS



COLABS AT PARNASSUS

Impact on Researchers

Improve services for existing users of Parnassus cores

- **PFCC (Flow Cytometry)** 140 PIs
- **BIDC (Imaging)** 51 PIs, 19 departments
- **CTSI CRS Sample Processing Core** 59 PIs
- **IHG Core Single Cell RNA-seq** ~50 PIs
- **Parnassus Center for Advanced Technology** ~15 PIs
- **Immunoprofiler Flow/Sequencing and Allied Projects** ~25 PIs

Provide on-site access to key services now only available elsewhere

- **Nikon Imaging Center in Genentech Hall** 191 PIs, ~15% at Parnassus
- **Center for Advanced Technology in Genentech Hall** 150 PIs, ~15% at Parnassus
- **Transgenic Core at Gladstone** ~35 UCSF PIs, >50% at Parnassus
- **Functional Genomics Core in Rock Hall** 55 PIs, 49% at Parnassus
- **Clinical Immunology Lab at ZSFG** 27 PIs, all would benefit from access to PFCC

Unlock access to transformative technologies for existing and new users

- **Data sciences** for storage and analysis of large datasets (including genomics)
- New **imaging** and **single cell analysis** methods
- **Advanced gene editing** (CRISPR and beyond)
- **Massively parallel functional assays**

COLABS AT PARNASSUS

New User Access

New users can enter the CoLabs in one of several ways:

- **Direct access:**
  Access by interacting directly with the CoLabs Director. The new user will typically be the PI and the project will largely be managed by personnel determined by the Director.
- **Sponsored access:**
  Access through collaboration with an existing user (Sponsor). The project will largely be managed by personnel "linked" to the Sponsor's existing project.
- **Recharge/subscription access:**
  Each CoLab will retain its traditional "core" capacities, *e.g.* daily users who use a single-piece of equipment

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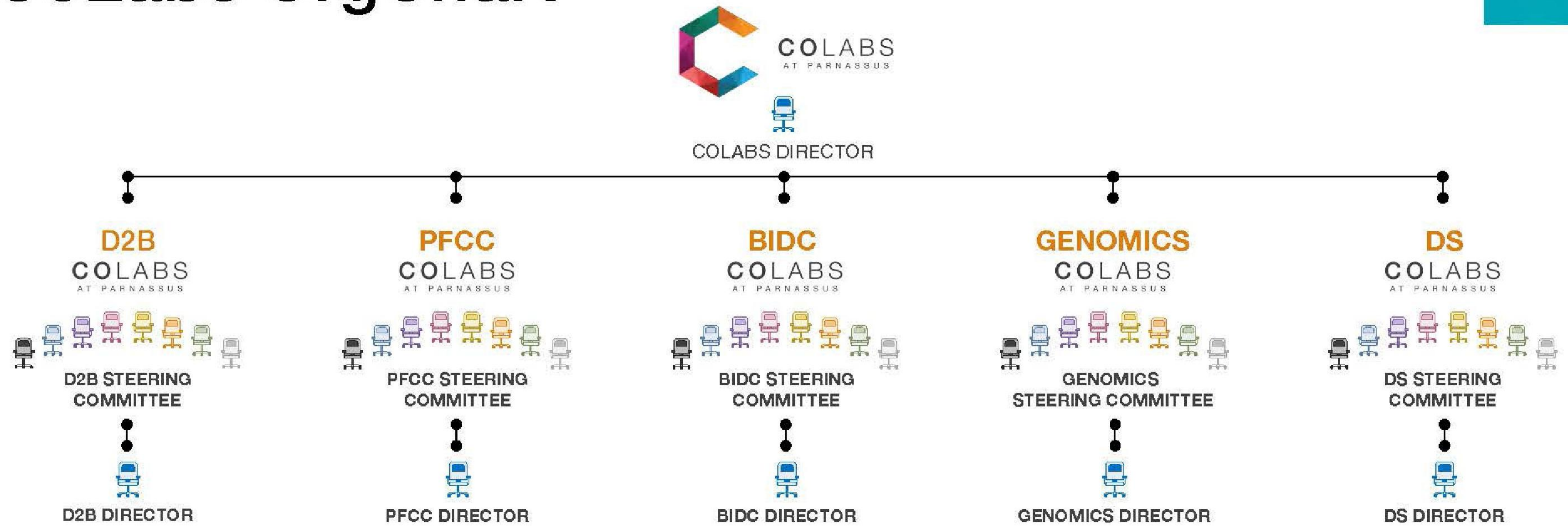
COLABS AT PARNASSUS

CoLabs OrgChart



COLABS AT PARNASSUS

COLABS DIRECTOR

D2B
COLABS AT PARNASSUS
D2B STEERING COMMITTEE
D2B DIRECTOR

PFCC
COLABS AT PARNASSUS
PFCC STEERING COMMITTEE
PFCC DIRECTOR

BIDC
COLABS AT PARNASSUS
BIDC STEERING COMMITTEE
BIDC DIRECTOR

GENOMICS
COLABS AT PARNASSUS
GENOMICS STEERING COMMITTEE
GENOMICS DIRECTOR

DS
COLABS AT PARNASSUS
DS STEERING COMMITTEE
DS DIRECTOR

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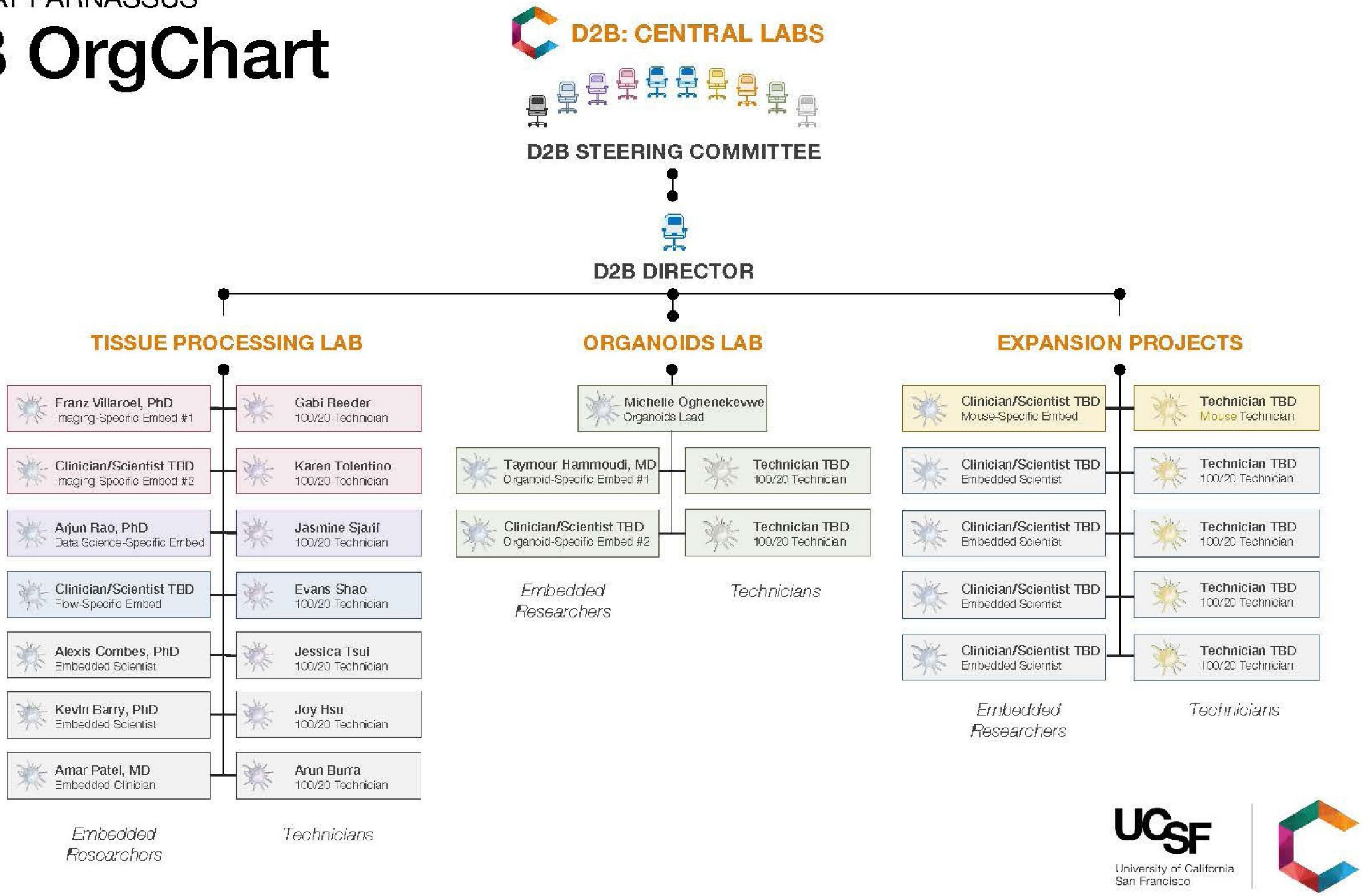
COLABS AT PARNASSUS

COLABS AT PARNASSUS

D2B OrgChart



D2B: CENTRAL LABS

D2B STEERING COMMITTEE

D2B DIRECTOR

TISSUE PROCESSING LAB

Embedded Researchers
- Franz Villaroel, PhD — Imaging-Specific Embed #1
- Clinician/Scientist TBD — Imaging-Specific Embed #2
- Arjun Rao, PhD — Data Science-Specific Embed
- Clinician/Scientist TBD — Flow-Specific Embed
- Alexis Combes, PhD — Embedded Scientist
- Kevin Barry, PhD — Embedded Scientist
- Amar Patel, MD — Embedded Clinician

Technicians
- Gabi Reeder — 100/20 Technician
- Karen Tolentino — 100/20 Technician
- Jasmine Sjarif — 100/20 Technician
- Evans Shao — 100/20 Technician
- Jessica Tsui — 100/20 Technician
- Joy Hsu — 100/20 Technician
- Arun Burra — 100/20 Technician

ORGANOIDS LAB

Michelle Oghenekevwe — Organoids Lead

Embedded Researchers
- Taymour Hammoudi, MD — Organoid-Specific Embed #1
- Clinician/Scientist TBD — Organoid-Specific Embed #2

Technicians
- Technician TBD — 100/20 Technician
- Technician TBD — 100/20 Technician

EXPANSION PROJECTS

Embedded Researchers
- Clinician/Scientist TBD — Mouse-Specific Embed
- Clinician/Scientist TBD — Embedded Scientist
- Clinician/Scientist TBD — Embedded Scientist
- Clinician/Scientist TBD — Embedded Scientist
- Clinician/Scientist TBD — Embedded Scientist

Technicians
- Technician TBD — Mouse Technician
- Technician TBD — 100/20 Technician
- Technician TBD — 100/20 Technician
- Technician TBD — 100/20 Technician
- Technician TBD — 100/20 Technician

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Space Programming


01/ 02 wet labs - 31 knee holes


05/ 06 tissue culture rooms - 20 BSC


01 large shared microscope room


05 small microscope rooms


01 large flow cytometry room


01/ 02 equipment rooms


01/ 02 dry labs - 46 desks


03 private offices - 3 desks


03 shared offices - 12 desks


06 small meeting room - 2 to 4 people


02 small conference rooms - 4 to 6 people


01 conference room - 12 to 16 people


01 seminar/ training room - 20 people


01/ 02 break rooms

Estimated program
space needs:
19,251 SQFT

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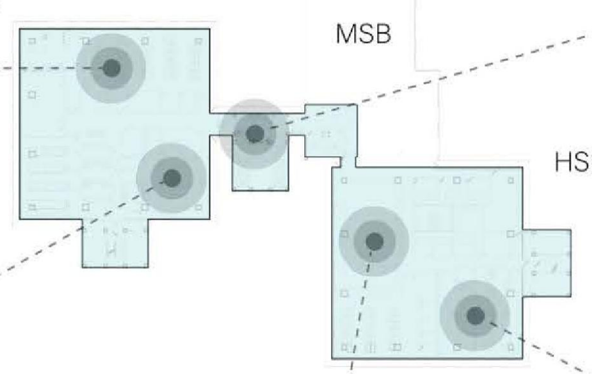
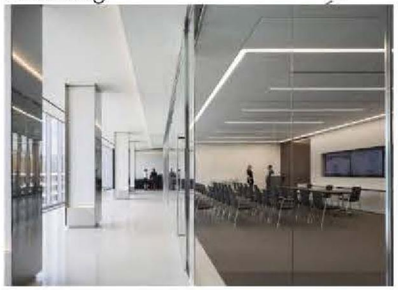
Design Considerations

Collaborating



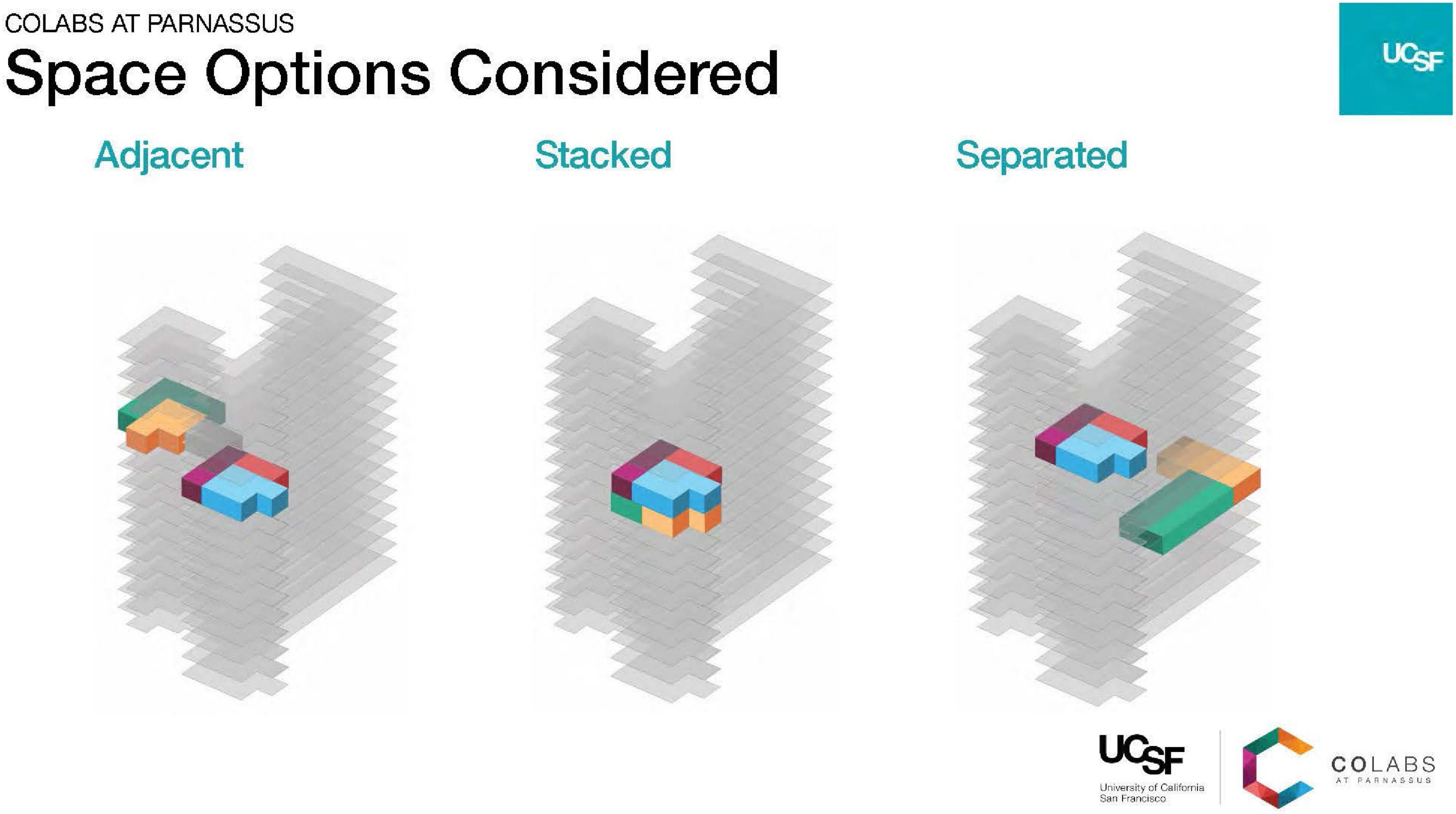
Socializing

Learning



Visual connection

Flexibility



COLABS AT PARNASSUS

Space Options Considered

Adjacent

Stacked

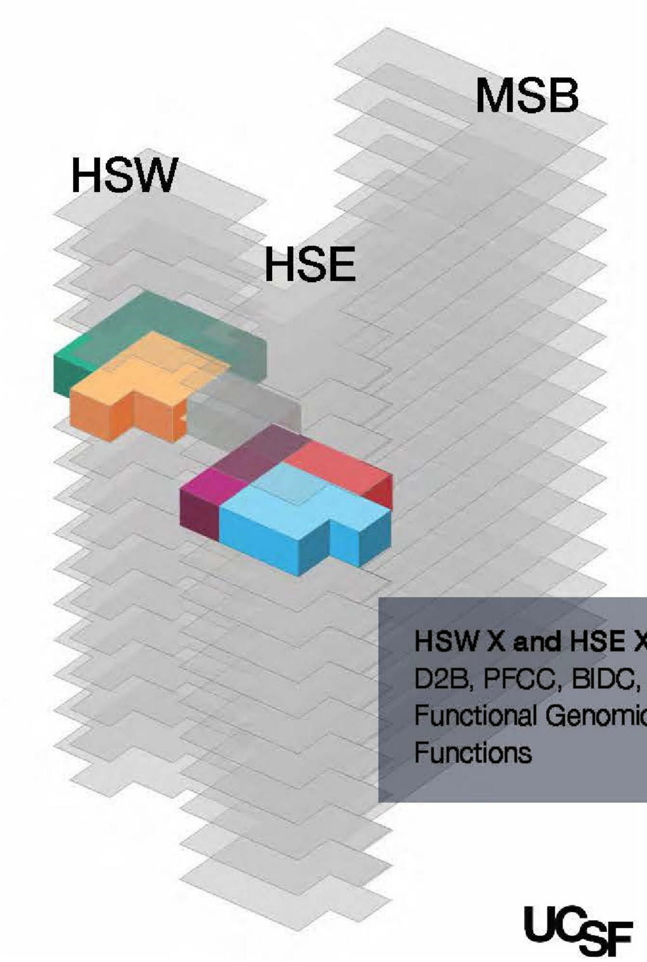
Separated

COLABS AT PARNASSUS

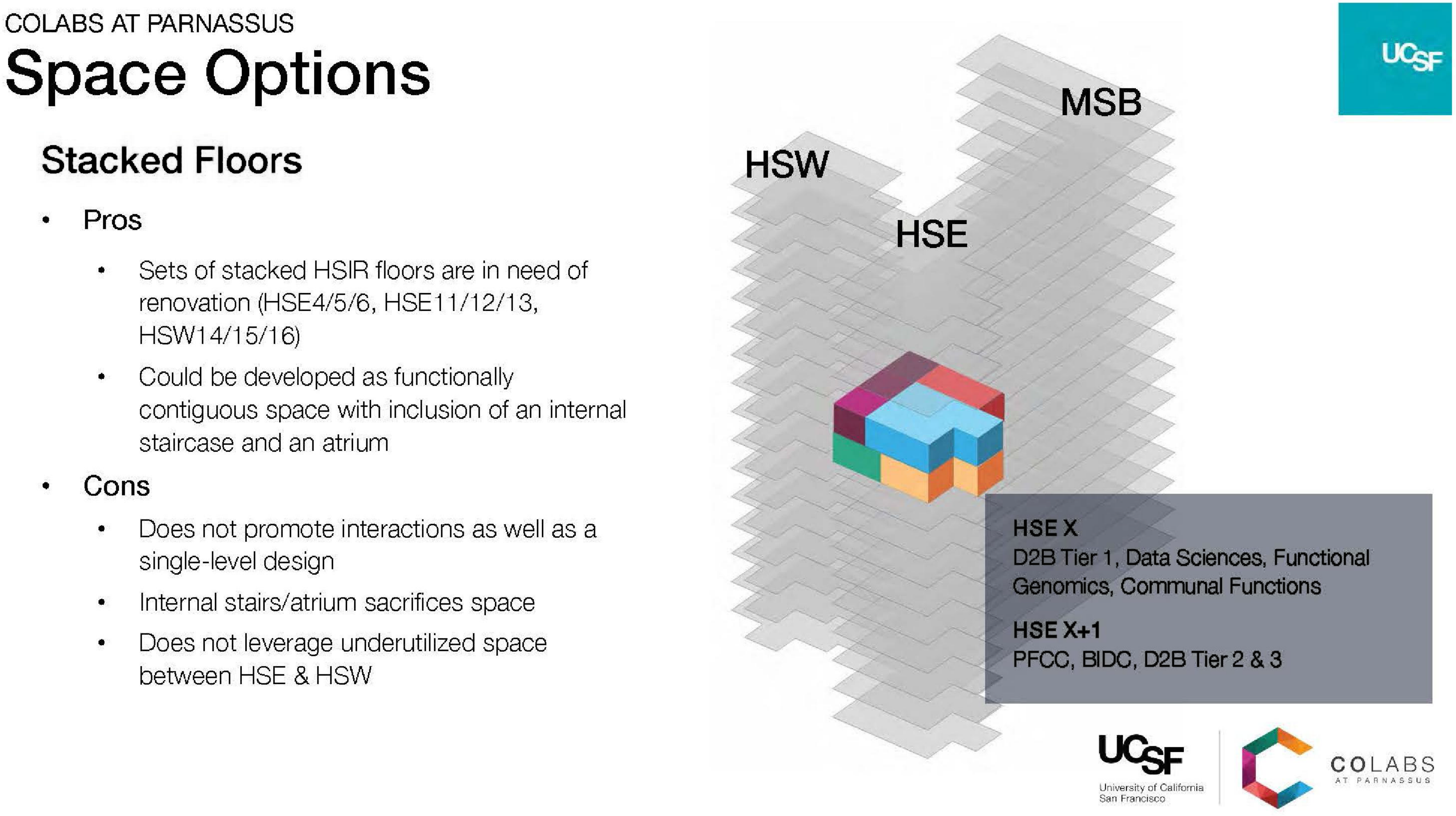
Space Options

Adjacent Floors

- Pros
    - Optimal for integration of all CoLabs
    - Maximizes chance "human collisions" designed to spark innovation and collaboration
    - Enables development of space between HSE & HSW for interaction area
    - Maximizes visibility of the CoLabs
- Cons
    - There are no HSIR levels with two floors (HSE & HSW) that are both in urgent need of renovation



HSW X and HSE X
D2B, PFCC, BIDC, Data Sciences, Functional Genomics, and Communal Functions



COLABS AT PARNASSUS

Space Options

Stacked Floors

- Pros
  - Sets of stacked HSIR floors are in need of renovation (HSE4/5/6, HSE11/12/13, HSW14/15/16)
  - Could be developed as functionally contiguous space with inclusion of an internal staircase and an atrium
- Cons
  - Does not promote interactions as well as a single-level design
  - Internal stairs/atrium sacrifices space
  - Does not leverage underutilized space between HSE & HSW

HSE X
D2B Tier 1, Data Sciences, Functional Genomics, Communal Functions

HSE X+1
PFCC, BIDC, D2B Tier 2 & 3

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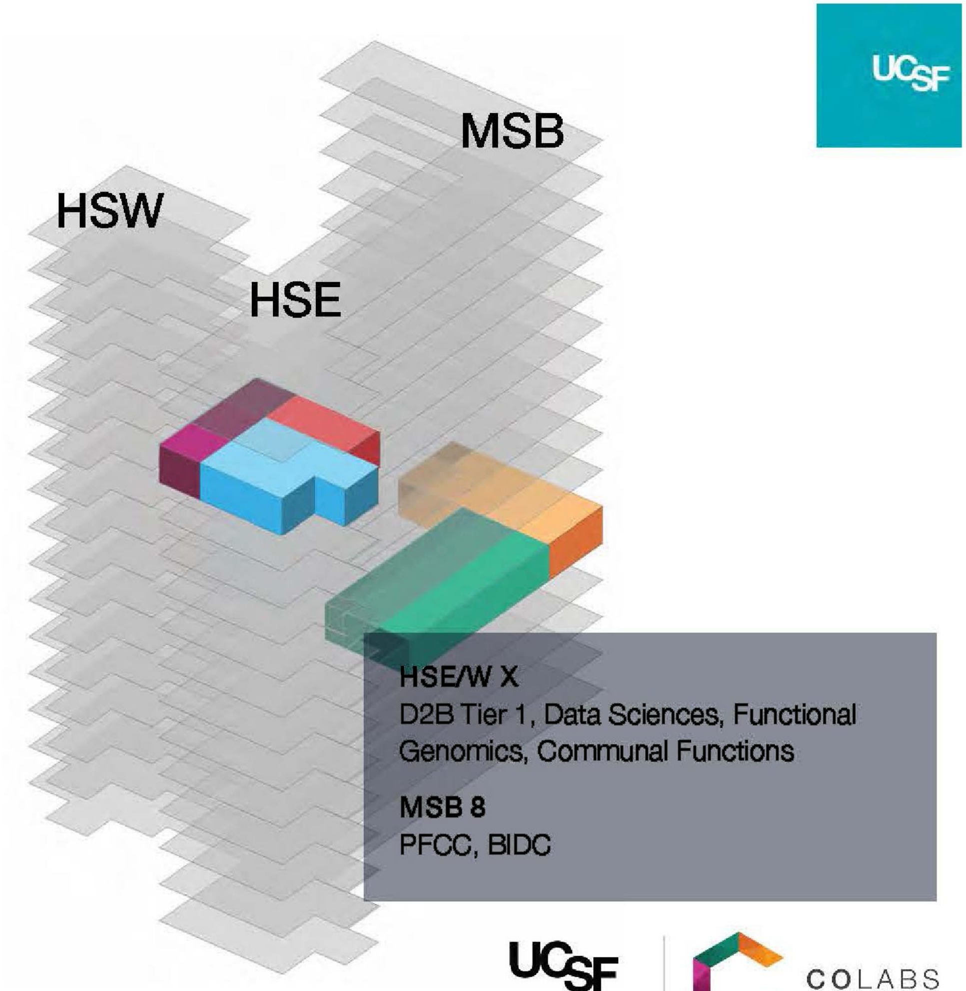
Space Options

Separated Floors

- Pros
  - Retains PFCC in existing space
  - Only need to relocate occupants of one floor
- Cons
  - Non-contiguous space
  - Discourages interactions
  - Less ability to adapt to new demands for space
  - Requires some duplication of space program elements
  - Requires development of additional space outside of the main CoLabs HSIR floor to accommodate expansion of PFCC and a new BIDC facility



HSE/W X
D2B Tier 1, Data Sciences, Functional Genomics, Communal Functions

MSB 8
PFCC, BIDC

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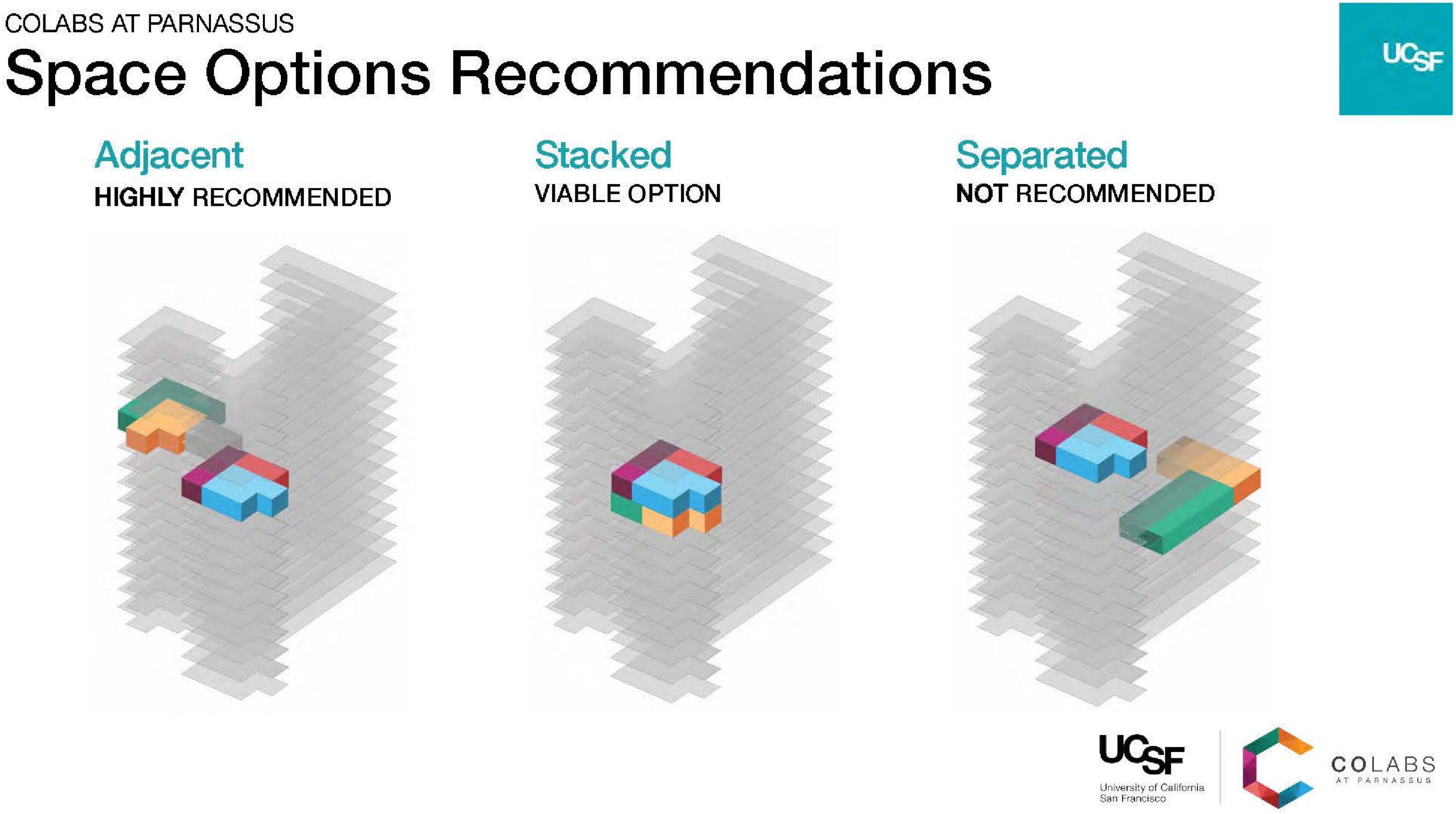

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Space Options Recommendations

Adjacent

HIGHLY RECOMMENDED

Stacked

VIABLE OPTION

Separated

NOT RECOMMENDED

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Adjacency issues

- **Should be centrally located**
  - Increased visibility
  - Better access for those in multiple buildings including the HS towers, MSB, and the Dolby Regeneration Medicine Building
  - Encourages more interactions
- **Uncertainties about future locations of other facilities is a challenge**
  - More information about Parnassus plans could help
  - Waiting for a complete Parnassus plan would introduce major delays
  - The CoLabs design should be flexible enough to allow repurposing of CoLabs space as needed

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Financing

- **Start-up costs**
  - **CoLabs construction costs:**
    Working estimate is $30M for 2 tower floors
  - **CoLabs equipment costs:**
    Large majority of equipment already exists and can be relocated to CoLabs
  - **Displaced labs relocation costs:**
    Estimated relocation budget is between $400 asf and $2,000 asf
- **Operating costs**
  - **Funding sources:** Recharge, subscription, grants, 100/20 model, & campus support ($400K/year)
  - **Launch:** 2018-2019

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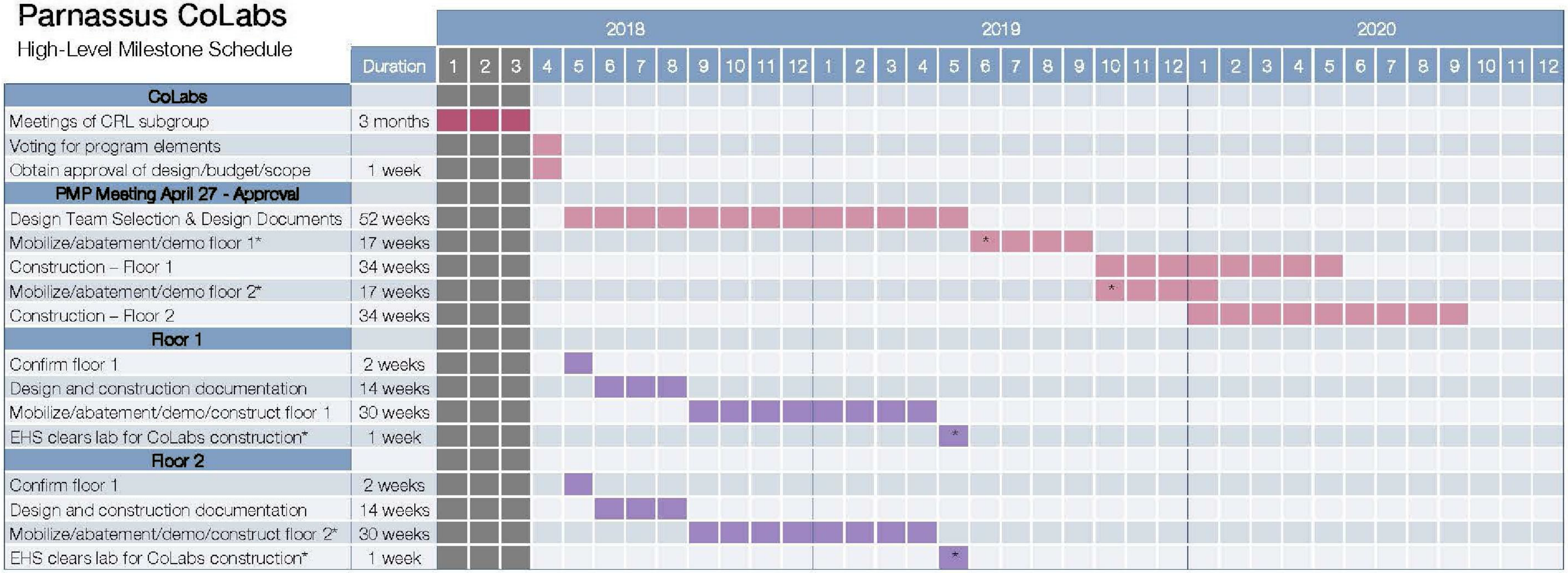
Timeline (subject to change)



Parnassus CoLabs

High-Level Milestone Schedule

		2018												2019												2020											
	Duration	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
CoLabs																																					
Meetings of CRL subgroup	3 months	🟥	🟥	🟥																																	
Voting for program elements					🟥																																
Obtain approval of design/budget/scope	1 week				🟥																																
PMP Meeting April 27 - Approval																																					
Design Team Selection & Design Documents	52 weeks					🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥																			
Mobilize/abatement/demo floor 1*	17 weeks																		🟥 *	🟥	🟥	🟥															
Construction – Floor 1	34 weeks																						🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥							
Mobilize/abatement/demo floor 2*	17 weeks																						🟥 *	🟥	🟥	🟥											
Construction – Floor 2	34 weeks																									🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥			
Floor 1																																					
Confirm floor 1	2 weeks					🟪																															
Design and construction documentation	14 weeks						🟪	🟪	🟪																												
Mobilize/abatement/demo/construct floor 1	30 weeks									🟪	🟪	🟪	🟪	🟪	🟪	🟪	🟪																				
EHS clears lab for CoLabs construction*	1 week																	🟪 *																			
Floor 2																																					
Confirm floor 1	2 weeks					🟪																															
Design and construction documentation	14 weeks						🟪	🟪	🟪																												
Mobilize/abatement/demo/construct floor 2*	30 weeks									🟪	🟪	🟪	🟪	🟪	🟪	🟪	🟪																				
EHS clears lab for CoLabs construction*	1 week																	🟪 *																			

** Dependent events*

COLABS AT PARNASSUS

CoLabs and the Future of Parnassus

The CoLabs project is important both as a resource and as a symbol

Many are deeply skeptical that Parnassus is the best place to do science and acutely aware of the lack of parity with Mission Bay

CoLabs can help by:

- Making Parnassus a better, more exciting place to do research
- Providing a highly visible early example of how UCSF is reinvesting in Parnassus

The success of the CoLabs will require a real commitment

There are competing demands for space, funds, and attention

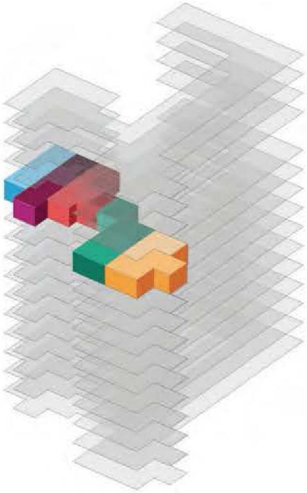
Finding a suitable CoLabs site will be hard

Detailed CoLabs planning must continue over the coming months

An ongoing investment will be required

COLABS AT PARNASSUS

Summary



Key principles

- Be “big and bold”
- Start now, maintain a sense of urgency, communicate clearly
- Continue to engage the faculty since many want to help solve problems and identify opportunities
- Make the CoLabs a transformational resource for Parnassus

Major recommendations

- Focus on site selection since this is currently the rate-limiting step
- We strongly recommend a centrally located, contiguous space (~20,000 sq. ft. or two tower floors)
- Develop a system for working with displaced groups to find good relocation solutions for them
- Funds will be required for ongoing CoLabs operations as well as CoLabs construction (including relocation)
- Many CoLabs activities should begin before the new space is completed

UCSF

COLABS AT PARNASSUS

CRL Task Force Members

Disease-to-Biology (D2B)
Saurabh Asthana
Vincent Chan (lead)
Hugh Cotter, Oculus Architects
Diane Kay
Max Krummel (lead)
Tippi Mackenzie
Patti Mitchell
Jeff Mulish
Jeroen Roose
Elizabeth Sinclair
Matt Spitzer
Scott Vandenberg

Biological Imaging Development Center (BIDC)
Hugh Cotter, Oculus
Diane Kay
Max Krummel
Diana Laird
Delaine Larsen
Mark Looney
Patti Mitchell
Matt Spitzer
Val Weaver
Torsten Wittmen
Katherine Yang (lead)

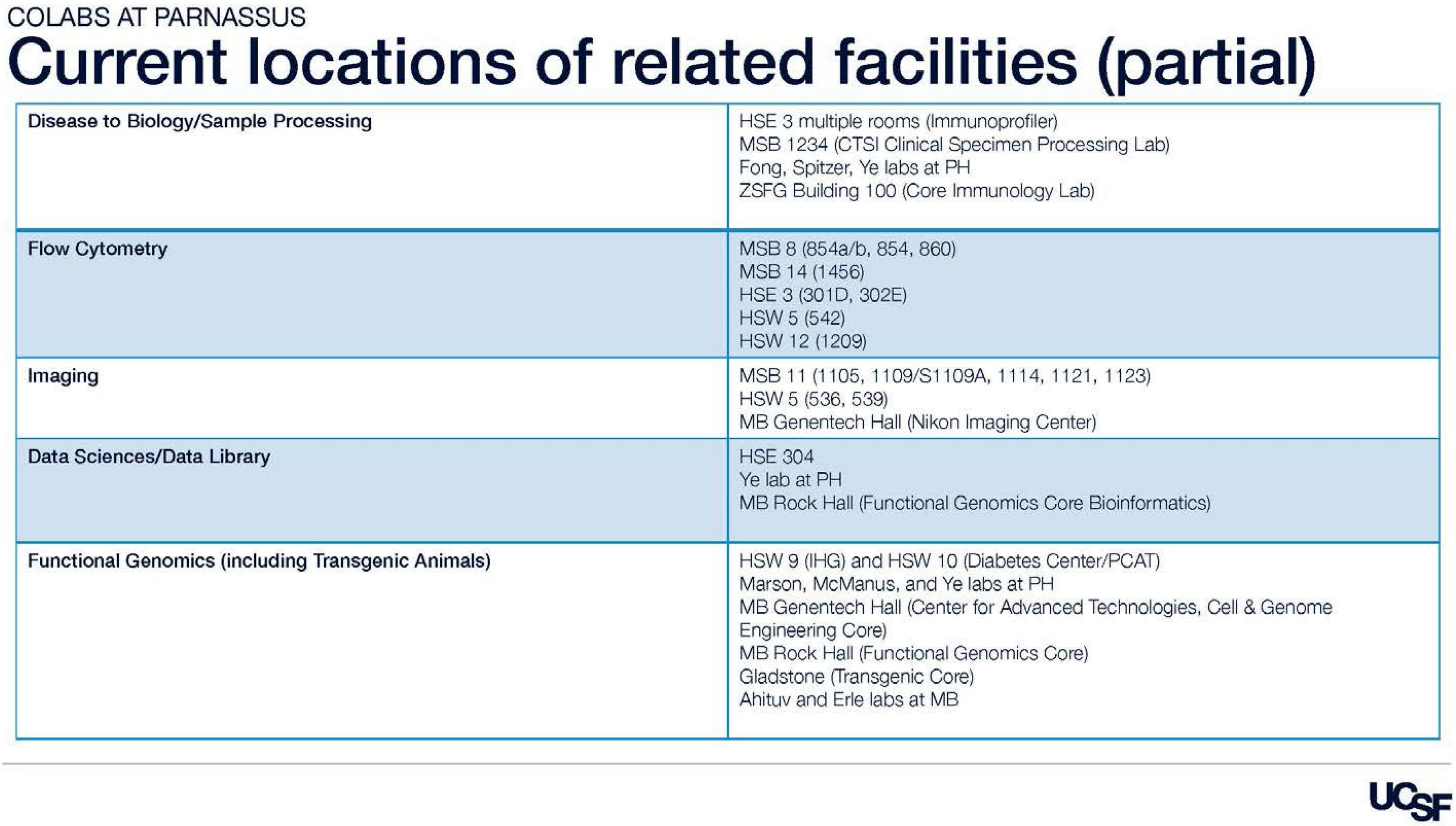
Flow Cytometry
Hugh Cotter, Oculus
Diane Kay
Max Krummel
Mike Lee
Cliff Lowell
Patti Mitchell
Matt Spitzer (lead)
Qizhi Tang

Transgenic
Nadhav Ahituv
Hugh Cotter, Oculus
Diane Kay
Averil Ma
Alex Marson
Mike McManus (lead)
Patti Mitchell
Elizabeth Sinclair

Physical Environment
Eric Chow (lead)
Hugh Cotter, Oculus
Diane Kay
Patti Mitchell
Elizabeth Sinclair
Matt Spitzer

Genomics
Nadhav Ahituv (lead)
Andrea Barczak
Eric Chow
Hugh Cotter, Oculus
Lindsey Criswell
David Erle
Chun (Jimmie) Ye
Diane Kay
Alberto Marquez
Alex Marson (lead)
Michael McManus
Patti Mitchell
Yin Shen
Elizabeth Sinclair
Ryan Wagner
Pui Yan Kwok

Data Sciences/Data Library (Bioinformatics)
Hugh Cotter, Oculus
Lindsey Criswell (lead)
Walter Eckalbar
Diane Kay
Patti Mitchell
Elizabeth Sinclair
Matt Spitzer
Chun (Jimmie) Ye (lead)



COLABS AT PARNASSUS

Current locations of related facilities (partial)

Disease to Biology/Sample Processing	HSE 3 multiple rooms (Immunoprofiler) MSB 1234 (CTSI Clinical Specimen Processing Lab) Fong, Spitzer, Ye labs at PH ZSFG Building 100 (Core Immunology Lab)
Flow Cytometry	MSB 8 (854a/b, 854, 860) MSB 14 (1456) HSE 3 (301D, 302E) HSW 5 (542) HSW 12 (1209)
Imaging	MSB 11 (1105, 1109/S1109A, 1114, 1121, 1123) HSW 5 (536, 539) MB Genentech Hall (Nikon Imaging Center)
Data Sciences/Data Library	HSE 304 Ye lab at PH MB Rock Hall (Functional Genomics Core Bioinformatics)
Functional Genomics (including Transgenic Animals)	HSW 9 (IHG) and HSW 10 (Diabetes Center/PCAT) Marson, McManus, and Ye labs at PH MB Genentech Hall (Center for Advanced Technologies, Cell & Genome Engineering Core) MB Rock Hall (Functional Genomics Core) Gladstone (Transgenic Core) Ahituv and Erle labs at MB

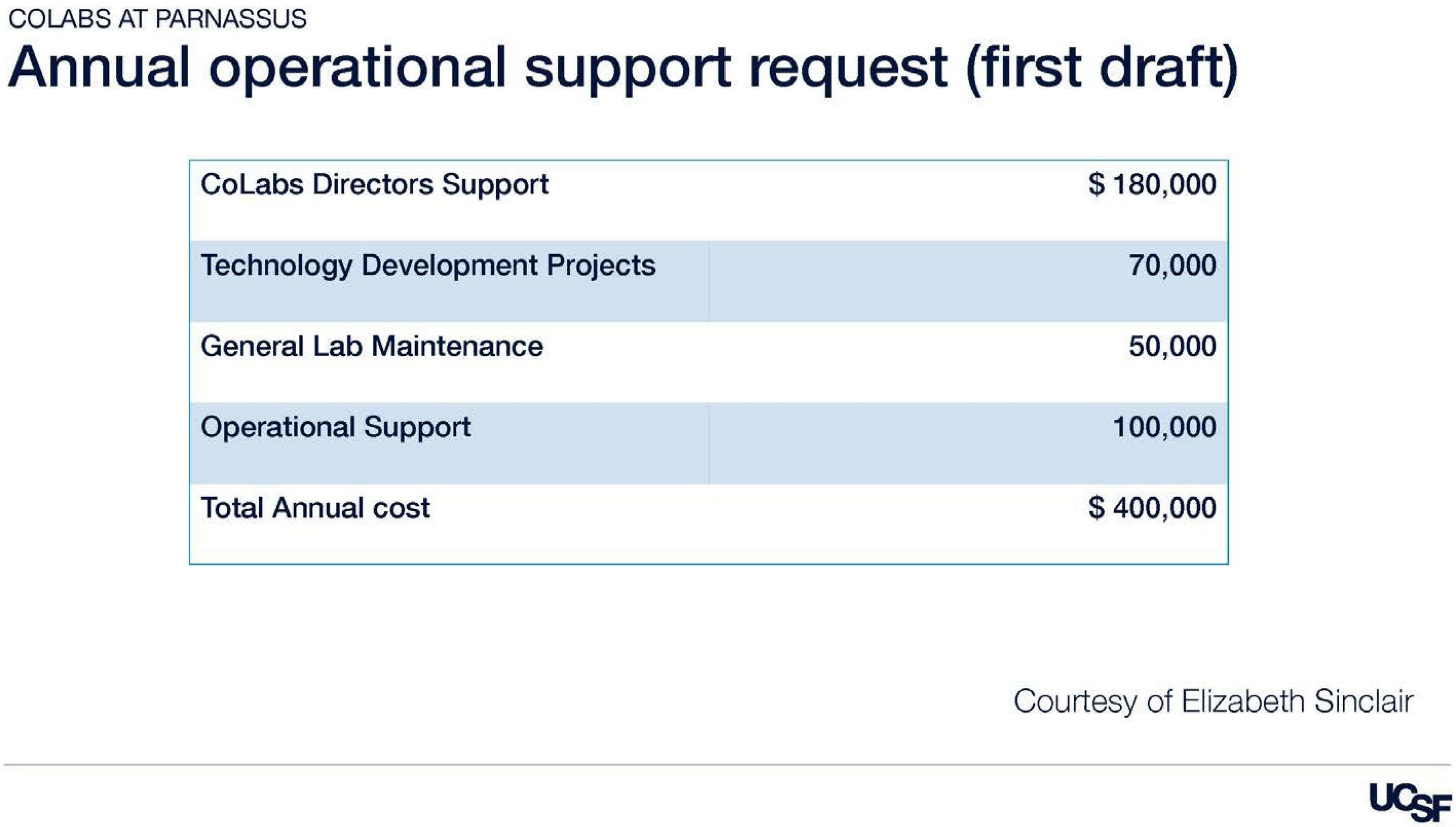
COLABS AT PARNASSUS

Preliminary Space Program

Group	Perm Staff	Priv. Office	Shared Office		Work Desks	Anal. Stats	Wet Lab Stats.	BSC	GSF	Notes
			#	P						
Disease to Biology - D2B										
Tier 1 (Immuno/ Bios/ Organoids)	13	0	0	0	11	0	9	7	1531	
Tier 2- CIL	6	0	1	4	0	0	0	3	520	
Tier 3- CTSI- Specimen Collection	6	0	0	0	4	0	0	2	455	
PFCC Flow Cytometry	10	1	0	0	6	0	2	0	3511	
BIDC	5	0	1	5	0	6	4	0	2426	
Data Sciences/Data Library	6	0	0	0	0	8	0	0	216	
Genomics	9	0	0	0	6	0	16	4	1541	
General Admin/ Shared Support	5	2	1	3	0	0	0	0	3610	Allows for private offices for ImmunoX/ CRL director, RRP director, shared office for Strategic Alliance, D2B and Bios managers (total approx. 330 GSF); shared spaces such as Huddle rooms (6); small Conference (2); Large Conf. (1), Seminar/ Training room; Kitchen/ Break; IDF's; Recycling, Electrical Rms.
Shared Lab Support	0	0	0	0	0	0	0	0	450	Shared functions such as gas bottle storage, shared fume hoods, chemical storage rooms.
Sub-total	60	3	3	12	27	14	31	16	14260	
Circulation @ 35%									4991	May vary from 15% to 35% in lab suites, but calculated at 35% at this time due to design aesthetic and desire to have open spaces which may increase required SF for various program elements and access to them.
ESTIMATED TOTAL GSF									19251	

Notes

1. This program has been developed based on meetings/calls with each of the individual groups and meetings/calls with full sub-committee members.
2. General Admin / Shared Support includes (3) Management Offices (Private offices for CRL Lab Manager, RRP Manager and shared office for Strategic Alliance, D2B and BIOS); (6) Focus/Huddle Rooms; (2) Small Conference Rooms; (1) Large Seminar Room; (1/2) Break Room; (2) IDF; (2) Electrical Rooms; (2) Emergency Supply Rooms
3. Shared Lab Support includes shared (2) Gas Bottle Storage; (2) Chemical Storage Rooms; (2) Fume Hoods.
4. Hoteling stations not added at this stage; multiple "embedded researcher" stations provided.
5. BSL 2* Tissue Culture may not be provided.
6. Wet Lab stations are wet lab knee holes and do not include desks adjacent. Some shared desks will be added.
7. All information here should be considered as preliminary and should be fully verified.



COLABS AT PARNASSUS

Annual operational support request (first draft)

CoLabs Directors Support	$ 180,000
Technology Development Projects	70,000
General Lab Maintenance	50,000
Operational Support	100,000
Total Annual cost	$ 400,000

Courtesy of Elizabeth Sinclair

C. COMMUNITY IDEAS

For the full report with appendices, please see: *https://www.ucsf.edu/sites/default/files/2019-09/ucsf-parnassus-heights_community-input-report_final.pdf*

University of California
San Francisco

Comprehensive Parnassus Heights Plan

COMMUNITY IDEAS

JUNE 2019

Acknowledgments

Comprehensive Parnassus Heights Plan Community Working Group Members:

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Contents

The re-examination of Parnassus Heights was sparked by two events: the need to replace the Moffitt Hospital to meet new seismic safety requirements established by the State of California and the need to reconfigure and modernize the campus' academic and research programs.

1 Introduction/ Project Background

The University of California San Francisco (UCSF) is re-envisioning its historic Parnassus Heights campus, home to its professional schools, a hospital and outpatient complex, and a robust and world-renowned research community. Since 1898, the Parnassus Heights campus has been the foundation for UCFS's advancements in discovery, teaching and patient care. As UCSF devotes its attention to the Parnassus Heights campus, the aim is to re-imagine a campus that will continue to support the University's mission of advancing health locally and globally.


PRESENT *Saunders Court*

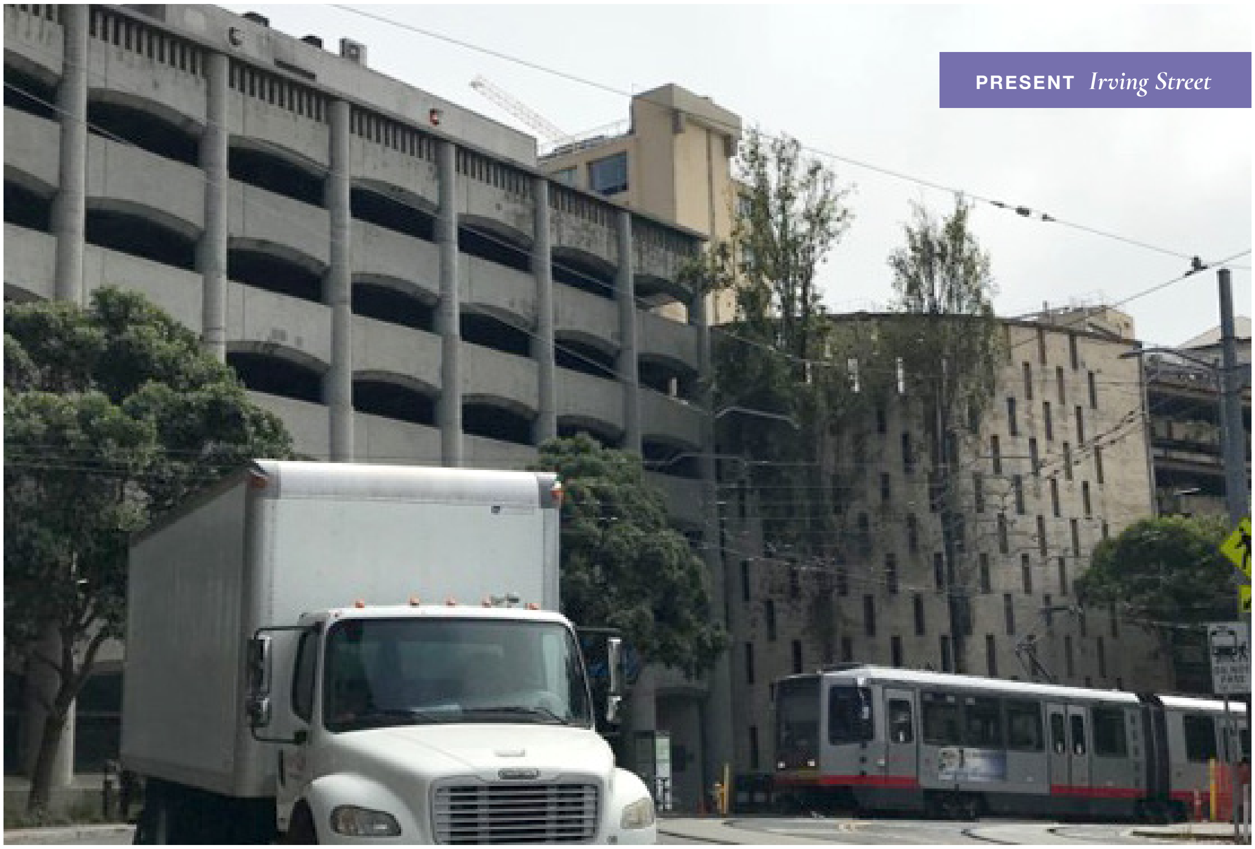
The re-examination of Parnassus Heights was sparked by two events: the need to replace the Moffitt Hospital to meet new seismic safety requirements established by the State of California and the need to reconfigure and modernize the campus' academic and research programs. At the same time, this re-envisioning provides an opportunity to look more comprehensively at the entire campus to evaluate whether improvements can be made to building design and functionality, public spaces and pedestrian connectivity, as well as vehicular traffic flow for patients, faculty, staff, visitors and nearby residents and businesses.

To inform the planning and design process, UCSF sought input from community members to identify potential improvements that would further the community's goals for the physical environment in the neighborhoods surrounding the Parnassus Heights campus. The University established a Community Working Group (CWG) comprising 24 members, representing neighborhood groups, city departments, public agencies, and other local stakeholders.

The meetings of the CWG involved presentations and discussions regarding the thematic topics of transportation/mobility, housing, open space, and the public realm. In addition to the CWG conversations, UCSF conducted an online neighborhood survey; a walking tour for CWG members and campus neighbors; and held two Community Open Houses, one in November 2018, and one in March 2019.

The Community Ideas summarized in this document reflect the feedback received from the community outreach activities. This document is a work product that will be submitted to the Parnassus Master Plan Steering Committee to be included in the final design guidelines for the Comprehensive Parnassus Heights Plan.


PRESENT *Promenade*


PRESENT *Irving Street*

2 Community Engagement Process

In July 2018, UCSF launched a survey to collect input on how the historic Parnassus Heights Campus can better serve community members, employees, patients and visitors. The survey solicited in-depth feedback on how community members currently use the campus and what changes community members would like to see. Between July and August 2018, a total of 1,139 surveys were collected. The survey was accessible in print and online formats to accommodate participant preferences. Available in English, Spanish and Chinese, the survey reached a broad range of local residents, employees, patients and visitors interested in the future of the Parnassus Campus.

The majority of respondents were residents of the neighborhoods surrounding the campus, both to the east and to the west. The typical survey respondent was a residential neighbor who has lived near the Parnassus Heights Campus for over 10 years and does not have children younger than 18 years of age living at home.

Staff of UCSF promoted the survey through multi-lingual postcards mailed to local residents and businesses near the campus. E-blasts to UCSF list-servs and other established channels were also used to publicize the survey.

Community Working Group

The purpose of the UCSF Parnassus Campus Community Working Group (CWG) is to provide input into the Parnassus Campus's planning and development projects. The CWG met seven times throughout the campus re-envisioning process and offered feedback and comments on various aspects of the emerging campus concept plan.

The specific charge to this group was to:

- Advise UCSF staff on neighborhood issues and opportunities related to the Parnassus Campus re-envisioning process;
- Articulate key community planning and design principles to be considered by UCSF as it considers future projects;
- Identify recommended strategies and actions for addressing community concerns regarding the physical development of the Parnassus Campus;
- Provide input and feedback to UCSF staff for the purpose of helping the University be a good neighbor to the community at large; and
- Serve as a communication link between UCSF and the community.

Neighborhood Open Houses

UCSF conducted two open houses during the CPHP process—on November 26, 2018, and on March 20, 2019. The purpose of these sessions was to provide the broader neighborhood community, partners and stakeholders an opportunity to learn about the re-envisioning process and to solicit feedback on emerging ideas on a range of topics that will guide the future development of the Parnassus Heights Campus, including mobility, public realm, campus design, connectivity to nature, programs and amenities, and housing.

3 Community Ideas

The Community Ideas were developed through a formal engagement process with representatives from neighboring communities and city agencies, as well as engagement with the broader community through a survey of area residents and a series of open forums. The 24-member Community Working Group (CWG) was created to identify and capture the community's ideas for a re-envisioned Parnassus Heights campus.

The CWG was not charged with endorsing the final Comprehensive Parnassus Heights Plan (CPHP) that resulted from the University's planning process. Among the CWG members, some expressed support for elements of the CPHP, while others expressed opposition to certain components. The CWG was not asked to, and did not, issue or vote on an endorsement.

At the first meeting of the CWG, UCSF presented the following language regarding the 1976 Regents' resolution establishing a space ceiling at the Parnassus Heights campus: "The projected need for a larger Parnassus Heights hospital facility demands that we take a hard look as to how we can remain faithful to our commitment to abide by the space ceiling. As such we will explore every appropriate avenue to manage our growth and to partner with the community to ensure that the vision for the Parnassus Heights Campus benefits both the neighborhood and UCSF." The space ceiling limits buildable space at Parnassus Heights to 3.55 million gross square feet, excluding housing. The CPHP contemplates exceeding the space ceiling. Although estimates are still being developed, the CPHP may contemplate exceeding the space ceiling by about 30%, or by approximately 1.15 million square feet.

As a next step, UCSF will continue to engage neighbors and city representatives to discuss the implications of the Preferred Alternative, with specific emphasis on the space ceiling and how best to manage UCSF's future growth to ensure that plans benefit both the neighborhood and UCSF. A number of the members of the CWG have expressed their desire to participate in such a process.

1.0 Housing

The community would like to see a range of on-campus housing options provided to students, staff and faculty. Offering additional single-person and family units will reduce transportation demand but will require additional resident-serving uses.

1.1 Allow for a range of creative housing options on campus that meet the needs of students, trainees, faculty, and staff. Examples include dormitory-style, smaller size units, adaptive housing, and modular construction. Consider amenities, such as markets, to serve housing tenants and neighbors.

1.2 Allow for safe and convenient housing for patients and their families through on-campus and off-campus opportunities. UCSF could continue to serve as an information and referral resource.

1.3 Avoid displacing anyone by converting existing housing to other uses. Continue the UCSF practice of avoiding acquiring existing residential property for non-residential use. (note: The Regents' Resolution Regarding the Parnassus Heights Campus Site in the 2014 Long Range Development Plan prohibits UCSF from acquiring or leasing private residential property not only contiguous with the campus site boundaries, but anywhere within the surrounding area bounded by Golden Gate Park, Oak Street, Ninth Avenue, Clayton Street, and Clarendon Avenue.)

1.4 Minimize impacts of additional housing on traffic and other infrastructure. Campus housing should be as pedestrian-friendly as possible; focus new housing on the campus. Any expansion at Aldea should consider traffic impacts.

1.5 Work with the City to create additional affordable housing and below market rate housing. Ensure on-going community engagement in future housing planning and development.

1.6 Create as much housing for UCSF students, trainees, faculty, and workforce as possible. Consider providing both single-person and family housing at Aldea, ensuring the creation of housing aligns with other points in this document.

2.0 Campus Design

Community members would like the campus to be more clearly articulated and better organized functionally. They see an opportunity to take greater advantage of the topography and views to, through and from the site.

2.1 Create a welcoming environment and a framework to the overall site design that helps make it comprehensible. Make campus entryways clear and inviting. Take into consideration nearby city street connections, including the intersection of Stanyan and Parnassus.

2.2 Take advantage of the topography of the site. Open up view corridors and provide opportunities both within buildings and in the outdoor spaces to enjoy the views. Minimize obstructing views of Mount Sutro wherever possible.

2.3 Provide open spaces and opportunities for social gatherings throughout the campus. Provide opportunities for collaborative work.

2.4 Mitigate the effects of weather and site topography. Factor in weather and wind conditions when designing outdoor spaces. Create enclosed open spaces to provide more protection from the elements.

2.5 Make the Parnassus Heights campus easy to navigate through clear and attractive signage and wayfinding methods. Consider using directional quadrants as a frame for wayfinding—north, south, east and west. Include wayfinding elements along the edges of campus, not just along Parnassus Avenue. Consider developing wayfinding apps.

2.6 Ensure cohesive and welcoming aesthetics throughout the campus. Consider having an architectural theme, or a visual design language, that ties together the new construction and existing buildings/landscape and contributes to a sense of place. Integrate glass with other materials. Keep San Francisco's history and art in mind. Ensure all public areas are welcoming and inviting.

2.7 Contribute to the University of California's long-term sustainability goals. The community has expressed its alignment with the UC system's ambitious sustainability goals. Designs should optimize solar access and incorporate green design throughout the campus.

2.8 Establish the campus heart at Saunders Court.

2.9 Design buildings to be flexible, adaptable, and easy to maintain to increase their longevity.

2.10 Provide active uses along pedestrian routes on the ground level as well as along circulation corridors on the upper floors of buildings, especially along the skybridge or tunnels.

2.11 Ensure that the size and scale of buildings are compatible with the surrounding neighborhood.

2.12 Minimize the impact of campus lighting on the neighborhood.

2.13 When possible, try to avoid excavation of the hillside.

3.0 Connectivity with Nature

The community would like to see a greener campus, with more landscaping, trails and open spaces throughout. They especially support the "park-to-peak" connection from Golden Gate Park to Mount Sutro.

3.1 Connect the campus to other open space opportunities in the city, such as Golden Gate Park and Mount Sutro. Ensure clear path of travel and navigation for the “park-to-peak” experience. Ensure the service corridor enhances/supports this concept.

3.2 Enhance access to open space both within the campus and to Mount Sutro. Help visitors understand and navigate the connections—for example, with a map of campus trails and paths. Incorporate smaller public spaces, such as parklets, niches and alcoves throughout the campus. Consider a park on the top floor of the parking structure, like the one on top of the Transbay Terminal.

3.3 Enhance landscaping to soften edges along streets and buildings.

3.4 Consider thematic landscaping, such as Mediterranean and medicinal/therapeutic plants.

3.5 Encourage ecological and biological diversity, including the use of native plants.

3.6 Enhance fire safety.

4.0 Multi-Modal Mobility

The community would like Parnassus Heights to be a "pedestrian-first" campus, with vehicular traffic dispersed between Parnassus Avenue and Irving Street.

4.1 Manage vehicular trips to and from the Parnassus Heights campus using enhanced Transportation Demand Management strategies.

4.2 Be welcoming and accessible for all modes—transit, bicycle, pedestrians and autos. Consider "corrals" for personal mobility devices, such as electric bikes and scooters. Add bike lockers for visitors. Offer additional EV-charging stations. Consolidate shuttle and transit stops to reduce the overall footprint; enhance overall system wayfinding; consider locating within a building to provide shelter from the weather; provide user-friendly real time transit information; provide signage to direct traffic in and around campus. Ensure access for emergency vehicles.

4.3 Implement traffic management and calming measures to maximize pedestrian safety on alignment with the City's Vision Zero policy. Consider lighted crosswalks, especially along Irving Street. Discourage jaywalking through streetscape improvements.

4.4 Create a "pedestrian first" campus. Ensure easy pedestrian mobility through the site using stairs, escalators, elevators, tunnels and skyways, with consideration for those with mobility challenges. Consider an elevated pedestrian crossing (bridge) and/or an underground tunnel across Parnassus Avenue to improve pedestrian safety.

4.5 Keep current with new technology to enhance transportation options; coordinate with the City.

4.6 Disperse vehicular traffic around campus streets. Possible examples include directing some traffic to Irving Street, creating an additional drop-off point on Hillway and Carl, and directing patient arrivals to Medical Center Way. Encourage staff/faculty to reduce or minimize vehicle trips. Ensure that vehicle traffic does not negatively impact public transit.

4.7 Create drop-off zones for Transportation Network Companies (TNCs) to improve pedestrian safety and reduce conflicts between drop-offs/pickups, bicyclists, transit, and through traffic.

4.8 Create a service corridor to focus commercial deliveries and other operational connections. Ensure there are north-south pedestrian connections. Provide weather protection for people using the service corridor. Offer a waiting area for trucks; discourage idling in the service corridor.

5.0 Public Realm

Community members stated their desire to create a network of public spaces on campus with improved streetscapes and neighborhood connections.

5.1 Provide for an activated campus frontage along Irving Street that is welcoming and accessible to all modes, especially transit.

5.2 Improve the streetscape experience of Parnassus Avenue.

5.3 Strengthen physical connections to the neighborhood and Golden Gate Park attractions. Build pathways and connections to bring UCSF people into the neighborhood, especially to patronize local businesses.

5.4 Place exhibits, such as interpretive signage, in key locations to help communicate to visitors the history of the Parnassus Heights campus and the discoveries made there. Provide opportunities for visitors to learn about and take pride in the accomplishments of UCSF.

5.5 Ensure adequate security for all open areas.

6.0 Programs and Amenities that Benefit the Neighborhood

UCSF will continue to provide activities and facilities open to the broader community that facilitate increased integration with the surrounding neighborhood and with the City at large.

6.1 Consider providing space on campus to house local non-profit organizations or community health and wellness services.

6.2 Create program and event spaces to bring people to campus and to encourage evening and weekend activity.

6.3 Enhance retail, food and recreation opportunities for all campus employees, residents and visitors, both on and off campus.

UCSF will initiate a community engagement effort with the goal of understanding, from the perspective of neighbors and other stakeholders, the potential effects of the Comprehensive Parnassus Heights Plan.

4 Next Steps

Following up on this re-envisioning process, UCSF will initiate a community engagement effort with the goal of understanding, from the perspective of neighbors and other stakeholders, the potential effects of the Comprehensive Parnassus Heights Plan on the neighborhoods that surround the campus and identify ways to offset those effects. This process will occur in tandem with, and serve to inform the preparation of, the Environmental Impact Report on the CPHP. The EIR effort will analyze potential impacts of the CPHP relative to the California Environmental Quality Act (CEQA). UCSF expects to bring the Environmental Impact Report, along with a potential amendment to its 2014 Long Range Development Plan regarding the revitalization and growth of the Parnassus Heights campus, to the September 2020 meeting of the University of California Board of Regents for consideration for approval.

ADDENDUM

ADDENDUM

A. GROWING PATIENT DEMAND

The Comprehensive Parnassus Heights Plan (CPHP) – a long-term vision to bolster UCSF's public mission in research, education, and care delivery at its oldest campus – was published in October 2019 after an extensive two-year process involving hundreds of stakeholders in meetings, workshops and surveys.

The CPHP is a blueprint for modernizing UCSF's Parnassus Heights campus over the next several decades. Many of the campus's outdated buildings can no longer support the research, training and health care delivery needs of 21st century science and medicine.

UCSF will update the Parnassus Heights campus over time. The Initial Phase (also called the Initial Sequence in the original October 2109 publication) will include building an architecturally excellent and seismically sound hospital to replace the campus' 65-year-old hospital that will be out of seismic compliance in 2030. The CPHP builds upon UCSF's 2014 Long Range Development Plan (LRDP), a framework for guiding physical planning and land-use decisions at all of its locations.

The primary purpose of the CPHP is to provide master plan-level guidance for the overall physical environment at the Parnassus Heights campus. It focuses on the configuration of buildings, the creation and expansion of publicly accessible open space areas, and the consideration of different types of uses within buildings, including those for inpatient and outpatient care, research, instruction, housing, recreation and parking.

B. UPDATES TO THE CPHP

This addendum provides an update to the CPHP, noting the key changes that have resulted since its publication in October 2019. The plans were updated after UCSF conducted further in-depth analysis to define its anticipated space needs for decades to come.

However, the proposed increase to the Parnassus Heights space ceiling limit – 1.5 million gross square feet (gsf), as cited in the CPHP – remains unchanged.

The next step in the CPHP process is the release of a Draft Environmental Impact Report (DEIR), which analyzes the plan's potential environmental impacts. The DEIR, to be published in July 2020, will reflect the changes in this Addendum, noting that individual buildings have not yet been designed.

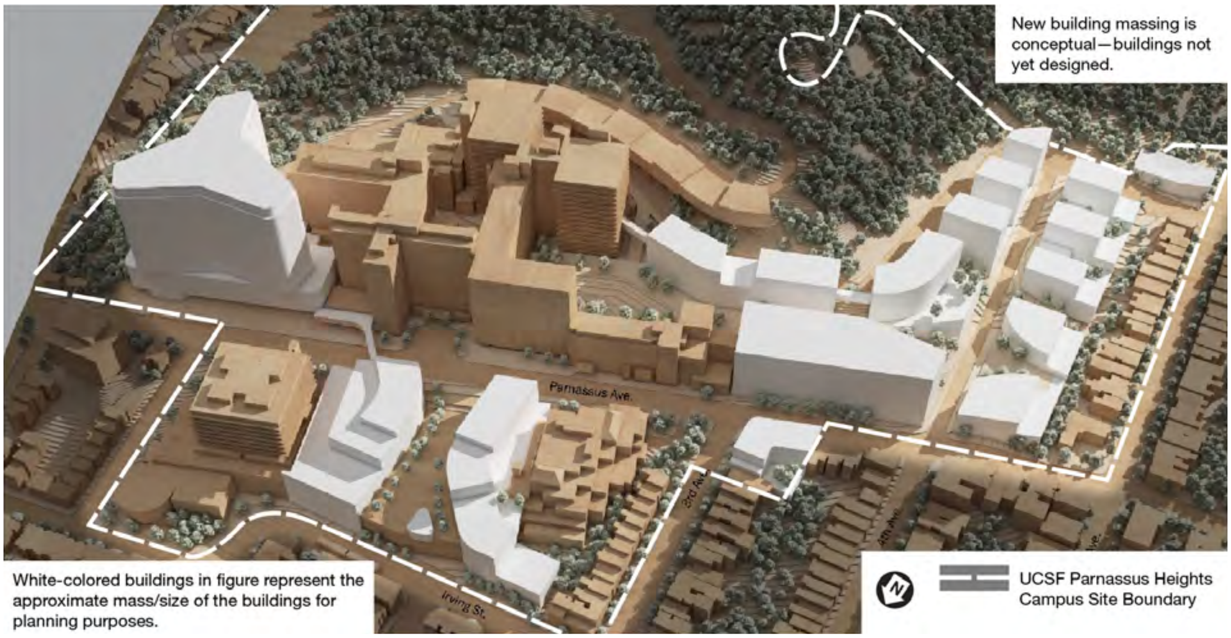
The two key changes from the CPHP, which this Addendum highlights, are:

- an increase in massing of the proposed new hospital and a decrease in massing of other buildings, which is depicted in Figure 1 below and replaces the previous figure found on pages 6-7 in the CPHP; and
- a platform that extends from the new hospital over Medical Center Way into the Mount Sutro Open Space Reserve, which is depicted in Figure 2 below and replaces the illustrative plan on pages 8-9 of the CPHP document.

Initial Phase Projects

The CPHP proposes four initial phase projects to be completed by 2030. They include:

- enhancing the Irving Street arrival with improvements such as more attractive exterior facades, interior design of the street-level lobby and easier wayfinding signage;
- constructing a new hospital at UCSF Helen Diller Medical Center at Parnassus Heights to provide greater capacity to meet the health care needs of a growing and aging population, to replace inpatient beds in the seismically deficient Moffitt Hospital, and to meet the state seismic safety law by 2030;
- replacing the century-old UC Hall with a new Research and Academic Building to provide state-of-the-art research, academic, and education space; and
- expanding the number of on-campus housing units at Aldea Housing to ease housing pressures in the city by providing below-market rental rates to UCSF students and faculty.



New building massing is conceptual—buildings not yet designed.

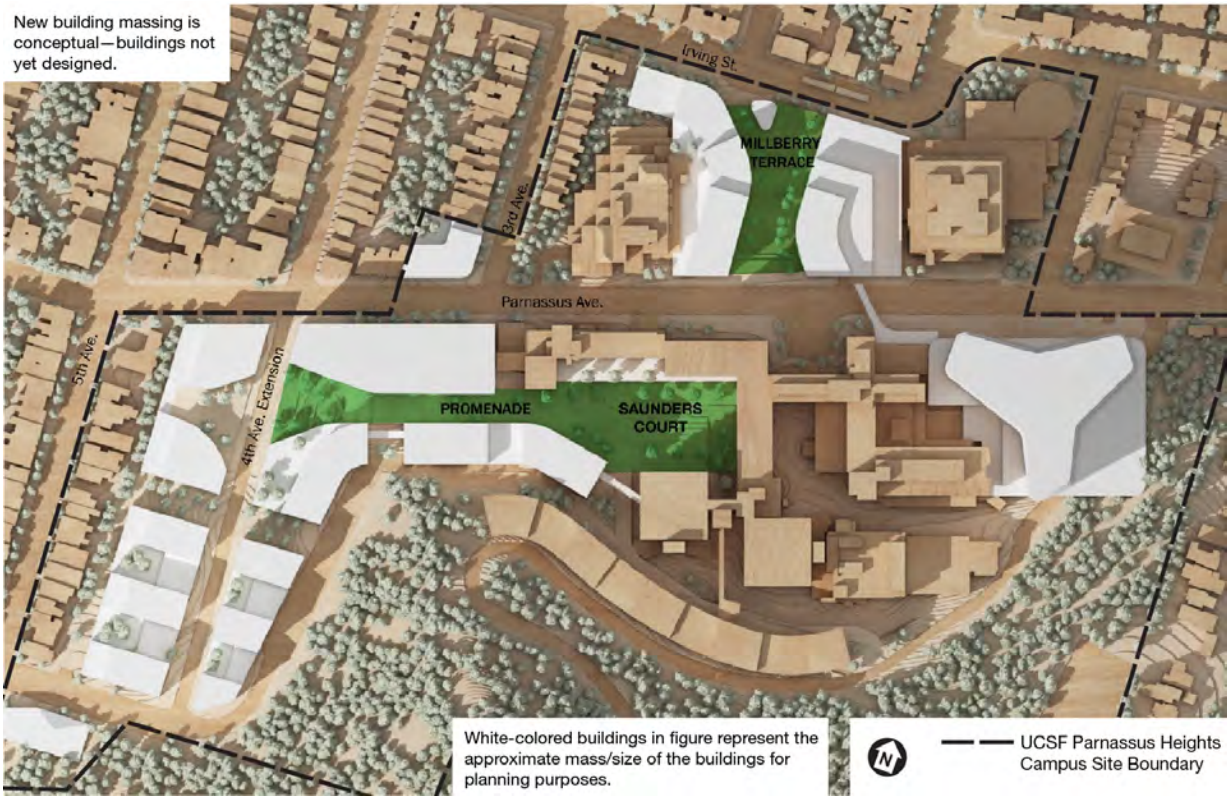
White-colored buildings in figure represent the approximate mass/size of the buildings for planning purposes.

1. Perspective model.

Expanding Patient Access

At the start of the CPHP process in 2018, UCSF underestimated the capacity requirements the new hospital would need in order to keep pace with the growing demands of the San Francisco Bay Area. The initial proposal in the LRDP called for building a new addition, connected to Long Hospital and built on the site of the Langley Porter Psychiatric Institute. The new hospital will replace the seismically deficient inpatient Moffitt Hospital to meet requirements of the state and University of California.

UCSF is not subject to the City's height limit but does attempt to comply with the established height zones, when possible. As noted in the LRDP, UCSF expected that the new hospital would need to exceed the city's 65-foot height limit for that portion of the site to meet program and operational requirements for modern health care facilities. In parallel with the CPHP process, which provides guidelines for the campus as a whole, UCSF also began developing plans for an architecturally outstanding, seismically safe and environmentally sustainable hospital. This master planning process was informed by additional analysis of future inpatient and outpatient volumes, health care demand forecasts, and in-


New building massing is conceptual—buildings not yet designed.

White-colored buildings in figure represent the approximate mass/size of the buildings for planning purposes.

UCSF Parnassus Heights Campus Site Boundary

2. Illustrative plan.

depth studies of the operational and functional needs of a hospital that would be able to serve the community for decades to come.

Further analysis and assessments have indicated that a larger hospital will be required to ensure that UCSF can continue to meet projected capacity demands of an increasingly growing and aging population in the San Francisco Bay Area. Expanding hospital capacity is important to be able to serve more patients referred to UCSF by community hospitals and health care providers which cannot themselves provide highly complex care such as liver and kidney transplants, chemotherapy for acute leukemia and complex spinal fusion.

In addition, as the needs of modern health care delivery have evolved, spatial requirements for clinical spaces have also grown and shifted to accommodate increases in equipment sizes, associated code requirements, and trends for improved work and teaching hospital environments.

In light of these growth projections, the DEIR cites plans to increase the overall hospital capacity by 42 percent.   This would help UCSF meet patient demand based on a projected increase in the Bay Area population of more than 750,000 people over the next decade. A large portion of this growing patient population will be individuals of Medicare age whose complex conditions often require longer hospital stays and more hospital beds.

Constructing a larger hospital will help UCSF address its ongoing challenges. Among them:

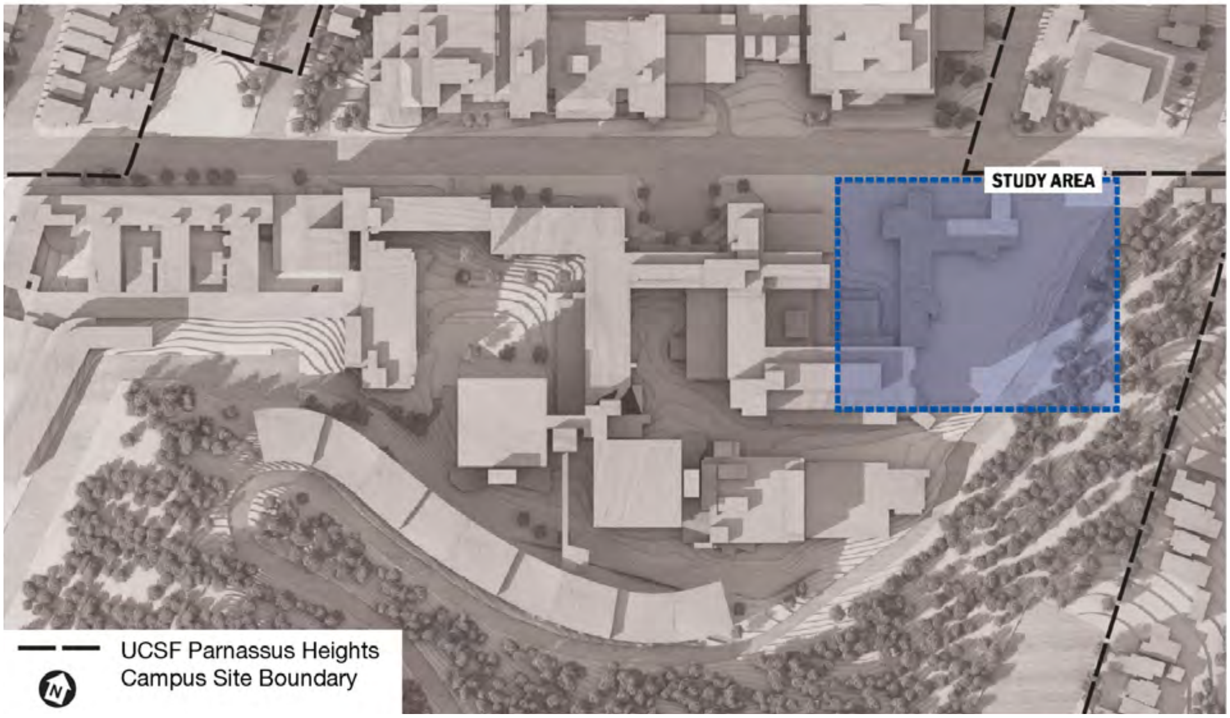
- In each of the past three years, between 2,200 and 3,000 patients—on average per year—referred by other hospitals and health care providers to UCSF for its complex care have been denied admission due to lack of hospital beds.
- On average, more than five patients per night spend the night in the Emergency Department (ED) while waiting for a hospital bed, contributing to ED overcrowding, lack of privacy, delayed access to specialized care, and prolonged wait times for patients and their families.
- More than two patients per weekday must spend the night in the PACU (post anesthesia recovery unit), following surgery, creating back-ups, delays, and cancellations for other scheduled surgeries.
- On average, four times each week the hospital goes on “high-capacity alert” as a result of too many patients in the ED, not enough critical care beds, and/or not enough acute care beds. This shortage causes delays of all clinically appropriate movement through the hospital.
- Shared hospital rooms do not provide the privacy or space patients and families need.

All of these scenarios potentially impact UCSF’s ability to fulfill its mission to provide high-quality care to all who seek it. The combination of chronic capacity issues and the clear trend toward even higher patient demand volume creates a sense of urgency to build a UCSF hospital that can better accommodate the care needs of the San Francisco Bay Area and strengthen the region’s health care system.

The 1.5 million gsf increase to the space ceiling proposed in the CPHP accommodates this additional clinical space as well as the growth expected in health sciences research and graduate-level education. Since the October 2019 CPHP plan was published, adjustments have been made to reduce space allocations in other areas to accommodate the larger hospital building and remain within the proposed increase of 1.5 million gsf.

For purposes of the 2019 CPHP, the planning team made assumptions about the massing of the new hospital building, in coordination with UCSF Health, and these were shown in three-dimensional models along with conceptual massing for all potential sites. It was expected and explained throughout the planning and community engagement process, however, that the actual massing of the new hospital building would not be known until early 2020.

As currently proposed, the new hospital would encompass approximately 955,000 gsf, 16 stories (up to 294 feet in height), and have the capacity for approximately 384 inpatient beds (Figure 1). The proposed new hospital and associated widening of Medical Center Way adjacent to the new hospital (which must be done for fire safety purposes), may result in a potential encroachment on the Mount Sutro Open Space Reserve (Figure 2). This encroachment was also not foreseen in the CPHP, but results from a desire to have floor plates be of a sufficient size to accommodate equipment and to limit the overall height of the building.

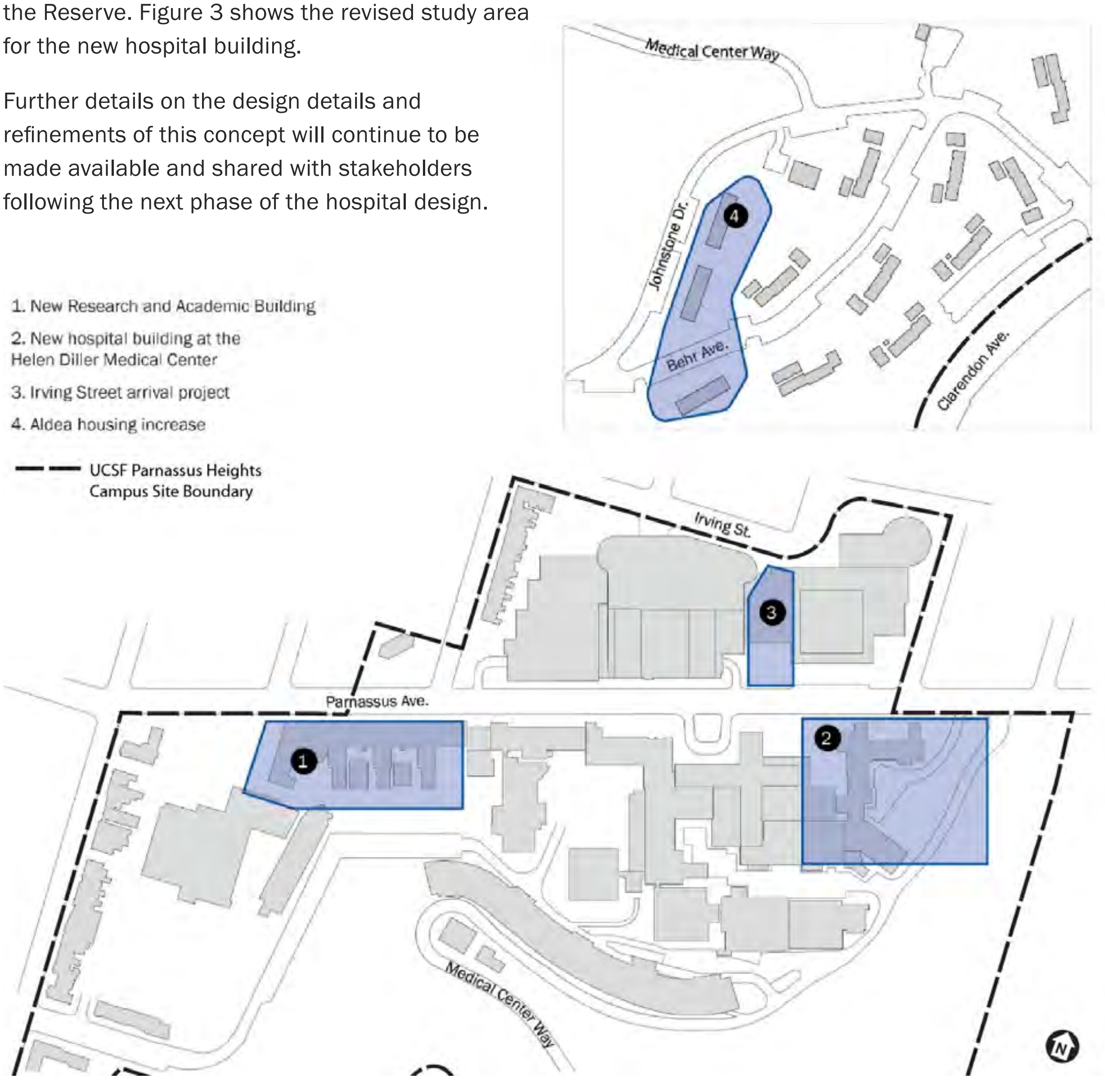


3. Study area for the new hospital building.

To compensate for this encroachment on the Reserve by the new hospital, UCSF has agreed to release an equivalent or greater acreage of other land within the campus site to the Reserve so that there would be no overall decrease in the size of the Reserve. Figure 3 shows the revised study area for the new hospital building.

Further details on the design details and refinements of this concept will continue to be made available and shared with stakeholders following the next phase of the hospital design.

Figure 4 below updates the CPHP on page 113 to indicate a different site boundary area for the new hospital building.

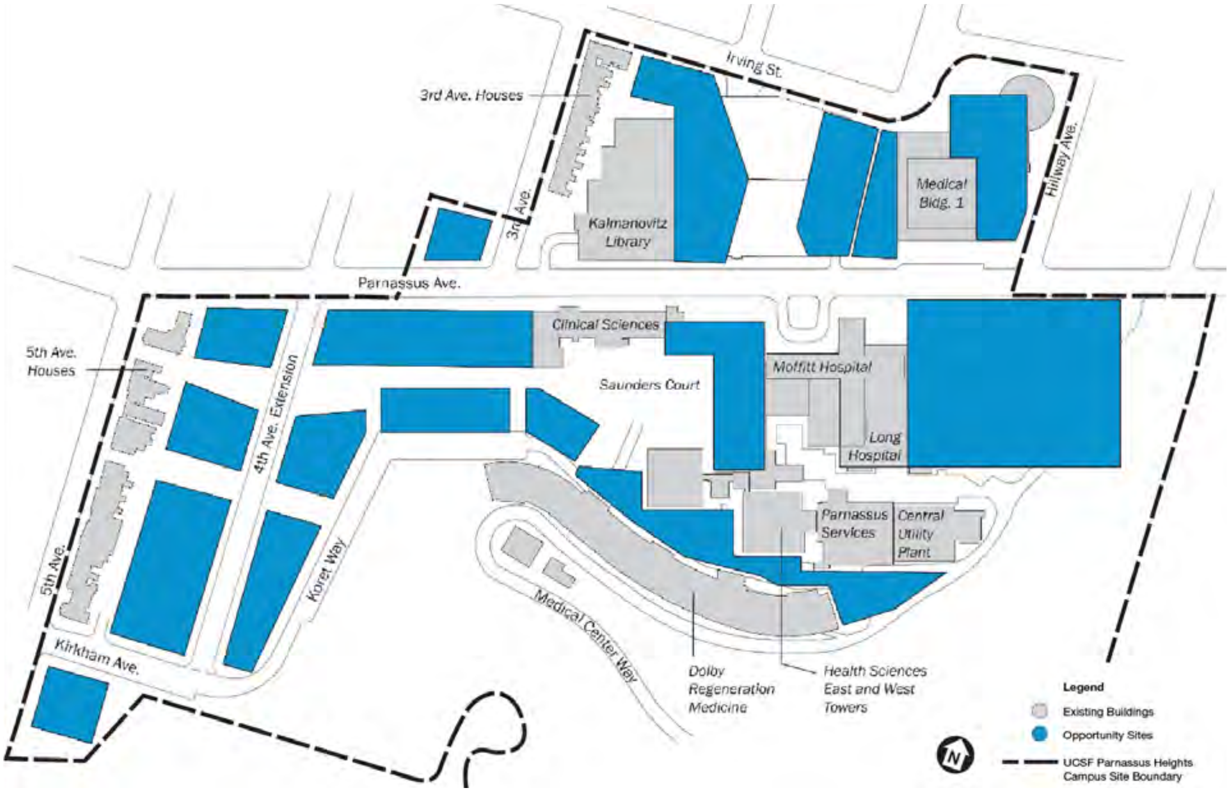


4. Initial project sequence and proposed locations at Parnassus Heights.

ADDENDUM

The three other initial phase projects are undergoing validation studies to provide additional feasibility analysis and to delve into specific technical details about each of the projects. This additional work will inform decision-making on how to proceed to the next phases of design and implementation.

The revisions described in this Addendum have also required updates to one other figure from the October 2019 CPHP document. The plan for opportunity sites (sites that could be redeveloped with new UCSF uses), shown on page 84 in the CPHP, has been updated to show the revised site boundary for the new hospital site (Figure 5).



5. Opportunity sites for new development at Parnassus Heights.

For illustrative purposes only: image does not represent architectural design.

UCSF
University of California
San Francisco

UCSF Real Estate

UCSF Box 0286
654 Minnesota Street, 2nd Floor
San Francisco, CA 94143

www.ucsf.edu

July 13, 2020

Project: UCSF Comprehensive Parnassus Heights Plan
Location: UCSF Parnassus Heights campus site
Block/Lot: 2634A/011 & 005; 1849/054; 1850/001; 1758/043; 1757/035; 1756/001; and 1275A/030
Sponsor: University of California, San Francisco (UCSF)
Lead Agency: The Regents of the University of California
Staff Contact: Diane Wong, UCSF (415) 502-5952

This is the Draft Environmental Impact Report (Draft EIR – State Clearinghouse Number 2020010175) for the above-named project, prepared pursuant to the requirements of the California Environmental Quality Act (CEQA). The document is available at https://www.ucsf.edu/cphp/community#eir for a 60-day public review and comment period beginning **July 13 through September 11, 2020.**

Project Description

The University of California, San Francisco (UCSF) is proposing the Comprehensive Parnassus Heights Plan (CPHP, published October 2019 and revised June 2020), a conceptual, flexible plan to meet projected space needs for critical programs in research, patient care, and education at the UCSF Parnassus Heights campus site while improving upon the aesthetic and functional design of the campus environment; and includes opportunities for development of on-campus housing. The CPHP includes an "Initial Phase" that primarily comprises: 1) Irving Street Arrival improvements, 2) Research and Academic Building (RAB), 3) initial Aldea Housing Densification, and 4) New Hospital; as well as other Initial Phase improvements. This Initial Phase is anticipated to be completed by approximately year 2030. Beyond the Initial Phase, the "Future Phase" encompasses the remaining development described in the CPHP envisioned for completion by the horizon year of 2050. In total, the CPHP provides for development of approximately 2.9 million gross square feet (gsf) of new building space at Parnassus Heights. When accounting for existing campus site development; demolition that was approved under the UCSF 2014 Long Range Development Plan (LRDP) but yet not implemented; and potential additional building demolition that would occur under the CPHP, the total amount of campus space upon full implementation of the CPHP would be approximately 6.0 million gsf, including instruction, research, clinical, and support space; housing; and structured parking. The CPHP is available at https://www.ucsf.edu/cphp.

Because the CPHP proposes to modify the Parnassus Heights development plans identified in the 2014 LRDP, an amendment of the 2014 LRDP is proposed.

For purposes of the CEQA, the University of California is lead agency.

Anticipated Environmental Effects

The proposed CPHP is anticipated to result in potentially significant environmental effects relating to Aesthetics; Wind; Air Quality, Biological Resources, Cultural Resources and Tribal Cultural Resources; Geology and Soils; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Noise and Vibration; Transportation; and

Cumulative Impacts. The project site is not located on any of the lists of sites enumerated under Section 65962.5 of the Government Code.

Public Review and Comment

As indicated above, the Draft EIR is available at https://www.ucsf.edu/cphp/community#eir for a 60-day public review and comment period beginning **July 13 through September 11, 2020.**

If you would like a paper copy of the Draft EIR, please call (415) 502-5952 and leave a message clearly stating your full name, mailing address, and contact information (email or phone number).

During the public comment period, the public may submit comments on the content and adequacy of the Draft EIR analysis. Comments may be submitted in writing and/or orally at the Draft EIR public hearing (see information below).

Submission of Written Comments

- Submission of written comments via email is encouraged. Please email comments to EIR@ucsf.edu.
- Should you wish to send written comments via regular mail, please mail your comment letter to Diane Wong, UCSF Real Estate - Campus Planning, 654 Minnesota Street, San Francisco, CA 94143-0286.

Please include your full name and address in written correspondence. All comments must be received no later than 5:00 PM on **September 11, 2020.**

Draft EIR Public Hearing

UCSF will hold a Draft EIR Public Hearing on August 26, 2020 beginning at 5:30 p.m. to receive oral comments on the adequacy of the information presented in the Draft EIR. Due to the COVID-19 pandemic, the Draft EIR Public Hearing will be conducted via Zoom. If you are interested in attending this meeting, please register at: http://tiny.ucsf.edu/CPHPDEIRHearing. After registering, you will receive a confirmation email containing information about joining the meeting.

Please note that all public comments made in writing or in oral testimony at the Draft EIR Public Hearing will be part of the public record. Comments received at the Public Hearing or in writing will be responded to in a Comments and Responses document to be prepared subsequent to the close of the comment period. The Comments and Responses document, together with the Draft EIR, will comprise the Final EIR which will be prepared for the University of California Board of Regents to consider for certification.

Thank you for your interest in this project.

Sincerely,

Diane C. Wong

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DRAFT

JULY 2020

UCSF COMPREHENSIVE PARNASSUS HEIGHTS PLAN

Environmental Impact Report

State Clearinghouse Number 2020010175

University of California
San Francisco

DRAFT

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Prepared for
University of California, San Francisco
Real Estate - Campus Planning
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LIST OF ABBREVIATIONS AND ACRONYMS

2014 LRDP	2014 Long Range Development Plan
ABAG	Association of Bay Area Governments
AB 32	California Global Warming Solutions Act
AB 52	California Assembly Bill 52
AB 341	California Assembly Bill 341
AB 939	California Integrated Waste Management Act of 1989
AB 1007	California Assembly Bill 1007
AB 1493	California Assembly Bill 1493
AB 1497	California Assembly Bill 1497
AB 1807	California Assembly Bill 1807
AB 1826	California Assembly Bill 1826
AB 1881	California Assembly Bill 1881
AB 2588	California Assembly Bill 2588
ACCDA	Alameda County Community Development Agency
AC Transit	Alameda-Contra Costa Transit District
ACUPCC	American College and University Presidents' Climate Commitment
ADA	federal Americans with Disabilities Act of 1990
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AFY	acre-feet per year
APEZ	Air Pollutant Exposure Zone
AQI	Air Quality Index
asl	above sea level
AST	Above Storage Tank
ATCM	Airborne Toxic Control Measure
AWSS	Auxiliary Water Supply System
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology

BART	San Francisco Bay Area Rapid Transit District
BMPs	best management practices
Btu	British thermal units
°C	degrees Celsius
CAA	federal Clean Air Act
CACS	Chancellor's Advisory Committee on Sustainability
CAFE	Corporate Average Fuel Economy
CalARP	California Accidental Release Prevention Program
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal OES	Governor's Office of Emergency Services
CalTrain	Peninsula Corridor Joint Powers Board
Caltrans	California Department of Transportation
CalRecycle	California Department of Resources Recycling and Recovery
CAP	Clean Air Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CAS	Climate Action Strategy
CBC	California Building Code
CCAR	California Climate Action Registry
CCR	California Code of Regulations
CCSF	City and County of San Francisco
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CDHS	California Department of Health Services
CDPH-RHB	California Department of Public Health, Radiological Health Branch
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	federal Comprehensive Environmental Response, Compensation and Liability Act of 1980
CESA	California Endangered Species Act

CFR	Code of Federal Regulations
CGP	Construction General Permit
CGS	California Geological Survey
CHP	California Highway Patrol
CH_4	methane
CNDDB	California Natural Diversity Database inventory of rare plants and animals
CNEL	Community Noise Equivalent Level
CNI	Carbon Neutrality Initiative
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
COPPS	Community Orientated Policing and Problem Solving
COVID-19	Coronavirus Disease 2019
CPHP	Comprehensive Parnassus Heights Plan
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CSB	Clinical Sciences Building
CSC	California Species of Concern
CSS	combined sewer system
CTC	California Transportation Commission
CUP	Central Utility Plant
CUPAs	certified unified program agencies for hazardous materials programs
CWA	Federal Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel
DNL	day-night noise level
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control

DWR	California Department of Water Resources
EC	UCSF Environmental Coordinator
EDD	California Employment Development Department
EDGs	emergency diesel generators
EH&S	UCSF Office of Environment, Health and Safety
EIA	U.S. Energy Information Administration
EIR	Environmental Impact Report
EO	Executive Order issued by California Governor or U.S. President
EV	electric vehicle
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FCAA	federal Clean Air Act
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FTA	Federal Transit Administration
FY	Fiscal Year
GGE	greenhouse gas equivalents
GGT	Golden Gate Transit
GI	green infrastructure
GHGRS	Greenhouse Gas Reduction Strategy
GHG	Greenhouse gas
gpm	gallons per minute
gsf	gross square feet
GSA	U.S. General Services Administration
GWh	gigawatt hours
GWP	global warming potential
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HAP	hazardous air pollutant
HCD	California Department of Housing and Community Development
HI	hazard index for hazardous or toxic air pollutant exposure

HIA	Health Impact Assessment
HMBP	hazardous materials business plan
HMTA	Hazardous Materials Transportation Act
HP	horsepower
HRA	health risk assessment for hazardous or toxic air pollutants
HRSGs	heat recovery steam generators
HSIR	Health Sciences Instruction and Research
HVAC	heating, ventilation and air conditioning
I-80	Interstate 80
I-280	Interstate 280
ICDC	Integrated Center for Design & Construction
ICU	intensive care unit
IEPR	Integrated Energy Policy Report
JFK	John F Kennedy
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hours
L_{90}	noise level exceeded 90 percent of the time
L_{dn}	day-night noise level
L_{eq}	equivalent continuous sound level
L_{max}	maximum noise level
lb	pounds
LBP	lead-based paint
LCFS	Low Carbon Fuel Standard
LEED®	Leadership in Energy and Environmental Design
LID	Low Impact Development
LORS	Laws, Ordinances, Regulations, and Standards
LOS	level of service
LPPI	Langley Porter Psychiatric Institute
LRA	Local Responsibility Area
LRDP	Long Range Development Plan
LVW	loaded vehicle weight
MBTA	Federal Migratory Bird Treaty Act
MEI	maximally exposed individual

mgd	million gallons per day
MLD	most likely descendant
MMBTUs	million British Thermal Units
MMRP	Mitigation Monitoring and Reporting Program required by CEQA
MOU	Memorandum of Understanding
mph	miles per hour
MPO	Metropolitan Planning Organization
MRI	magnetic resonance imagery
MRZ	Mineral Resource Zone designated by the State Geologist
MS4	Municipal Separate Storm Sewer System
MSB	Medical Science Building
msl	mean sea level
MTC	Metropolitan Transportation Commission
$MTCO_2E$	metric tons of carbon dioxide equivalent
Muni	San Francisco Municipal Railway
MV	megavolt amperes
Mw	Maximum Moment Magnitude Earthquake
MW	megawatt
MWh	megawatt-hours
MWh/year	megawatt-hours per year
NAAQS	national ambient air quality standards
NAHC	California Native American Heritage Commission
NECPA	National Energy Conservation Policy Act
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
ng/m^3	nanograms per cubic meter
NHPA	National Historic Preservation Act
NHPH	New Hospital at Parnassus Heights
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide
NO_2	nitrogen dioxide
NOA	CEQA Notice of Availability
NOP	CEQA Notice of Preparation
NOx	nitrogen oxide

N_2O	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
NPC	Nonstructural Performance Category
NPF	North Point Wet Weather Facility
NPS	National Park Service
NRHP	National Register of Historic Places
NSR	New Source Review
NWIC	Northwest Information Center of the California Historical Resources Information System
OPR	Governor's Office of Planning and Research
OSFM	Office of the State Fire Marshal
OSHA	Occupation Safety and Health Administration
OSHPD	Office of Statewide Health Planning and Development
OSP	Oceanside Treatment Plant
PAs	participating agencies
PCBs	polychlorinated biphenyls
PDA	Priority Development Area identified by ABAG
PG&E	Pacific Gas and Electric Company
PHEVs	plug-in hybrid electric vehicles
PIs	Principal Investigators
PM	particulate matter
$PM_{2.5}$	particulate matter of 2.5 microns in diameter or less
PM_{10}	particulate matter of 10 microns in diameter or less
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	California Public Resources Code
PSB	Parnassus Services Building
PV	photovoltaic
RAB	Research and Academic Building
RCRA	Resource Conservation and Recovery Act of 1976
RCNM	Roadway Construction Noise Model
REAP	Rain Event Action Plan
REL	reference exposure level
RHNA	Regional Housing Need Allocation developed by ABAG

ROG	reactive organic gases
RPS	Renewable Portfolio Standard established by the CEC
RSWG	Research Space Working Group
RWQCB	Regional Water Quality Control Board
RWS	SFPUC Regional Water System
RWSAP	Retail Water Storage Allocation Plan
SAAQS	State ambient air quality standards
SamTrans	San Mateo County Transit District
SARA	Superfund Act and Reauthorization Act of 1986
SB X-1-2	California Senate Bill X 1-2
SB 32	California Senate Bill 32
SB 100	California Senate Bill 100
SB 107	California Senate Bill 107
SB 197	California Senate Bill 197
SB 350	California Senate Bill 350
SB 375	California Senate Bill 375
SB 610	California Senate Bill 610
SB 743	California Senate Bill 743
SB 1078	California Senate Bill 1078
SB 1383	California Senate Bill 1383
SB 1953	California Senate Bill 1953
SCS	Sustainable Communities Strategy required by SB 375
SEL	Sound Exposure Level
SEP	Southeast Treatment Plant
SEP	UC Strategic Energy Plan
SF6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SF-CHAMP	San Francisco Chained Activity Modeling Process
SFCTA	San Francisco Transportation Authority
SF DOE	San Francisco Department of Environment
SFDPH	San Francisco Department of Public Health
SFFD	San Francisco Fire Department
SFIA	San Francisco International Airport
SFPUC	San Francisco Public Utilities Commission

SFPW	San Francisco Public Works
SFRPD	San Francisco Recreation and Park Department
SFUSD	San Francisco Unified School District
SGMA	Sustainable Groundwater Management Act of 2014
SIP	State Implementation Plan for federal Clean Air Act compliance
SLCPs	short-lived climate pollutants
SoMa	South of Market
SO_2	sulfur dioxide
SOV	single-occupant vehicle
SPC	Structural Performance Category
SPP	UC Sustainable Practices Policy
STC	sound transmission class
STG	steam turbine generator
STIP	State Transportation Improvement Program
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TAZs	Transportation Analysis Zones
T-BACT	Best Available Control Technology for Toxics
TCR	The Climate Registry
TDM	Transportation Demand Management
TMDL	total maximum daily load for water quality standards
TMP	Transportation Management Plan
TOG	total organic gases
TPAs	Transit Priority Areas
TPY	tons per year
TRU	Transportation Refrigeration Units
TSCA	Toxic Substances Control Act
UC	University of California
UCMP	University of California Museum of Paleontology
UCOP	University of California Office of the President
UCPD	University of California, San Francisco Police Department
UCSF	University of California San Francisco

U.S. 101	U.S. Highway 101
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
USPS	US. Postal Service
USTs	Underground storage tanks
UWMP	Urban Water Management Plan
$\mu g/m^3$	micrograms per cubic meter
VdBs	vibration decibels
VMT	vehicle miles traveled
VOCs	volatile organic compounds
W/ft^2	power per square foot
WBERP	Whole Building Retrofit Program
WDRs	Waste Discharge Requirements
WGCEP	Working Group on California Earthquake Probabilities
WHO	World Health Organization
WPA	Works Progress Administration
WRCC	Western Regional Climate Center
WSA	Water Supply Assessment
WSE	Water Supply Evaluation
ZEV	zero emission vehicles

CHAPTER 1

Introduction

This Draft Environmental Impact Report (EIR) assesses the potentially significant environmental effects of implementation of the proposed University of California, San Francisco (UC San Francisco or UCSF) Comprehensive Parnassus Heights Plan (CPHP or Plan).[1]

The CPHP is a conceptual, flexible plan to meet projected space needs for critical programs in research, patient care, and education at the Parnassus Heights campus site while improving the functional and aesthetic design of the campus environment. The Plan also includes planning for development of much-needed on-campus housing. While the Plan guides physical development necessary to achieve the University's mission based on projected growth, it is not a commitment for growth or specific projects. It establishes a long-term development framework for the revitalization of the physical environment at the Parnassus Heights campus site, by identifying the following:

- Opportunity sites for new buildings and major renovations of existing buildings;
- Candidate buildings for demolition;
- Opportunities for development of open spaces; and
- Opportunities for improvements to on-campus mobility and circulation.

The CPHP includes an Initial Phase that primarily comprises: 1) Irving Street Arrival improvements, 2) Research and Academic Building (RAB), 3) New Hospital, and 4) initial Aldea Housing Densification; as well as certain other Initial Phase improvements. This phase is anticipated to be completed by approximately year 2030. Beyond the Initial Phase, the "Future Phase" encompasses the remaining development described in the CPHP envisioned for completion by the horizon year of 2050.

In total, the CPHP provides for development of approximately 2.90 million gross square feet (gsf) of new building space at Parnassus Heights. When accounting for existing campus site development (approximately 3.92 million gsf); demolition that was approved under the 2014 LRDP but not yet implemented (approximately 187,000 gsf); and potential additional building demolition that would occur under the CPHP (approximately 688,000 gsf), the total amount of campus building space upon full implementation of the CPHP would be approximately

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[1] The CPHP was published in October 2019. An Addendum to the CPHP dated June 2020 is now available that provides an update to the plan document, noting the changes to the plan that have resulted from the ongoing work to refine space needs, project parameters, and forecasts.

5.97 million gsf, including instruction, research, clinical, and support space; housing; and structured parking.

Because the CPHP proposes to modify the Parnassus Heights development plan identified in the 2014 LRDP, an amendment of the 2014 LRDP is proposed. This amendment would incorporate the CPHP into the 2014 LRDP, replacing the Parnassus Heights chapter in the 2014 LRDP and making other necessary conforming changes.

As required by the California Environmental Quality Act (CEQA), this EIR: (1) assesses the potentially significant direct and indirect environmental impacts, as well as the potentially significant cumulative impacts, associated with implementation of the CPHP; (2) identifies feasible means of avoiding or substantially lessening significant adverse impacts; and (3) evaluates a range of reasonable alternatives to the proposed CPHP, including the required No Project Alternative.

The University of California (University or UC) is the "lead agency" for the environmental review of the CPHP and for the LRDP amendment to incorporate concepts and proposals identified in the CPHP. UC is governed by the Board of Regents of UC (UC Regents), which under Article IX, Section 9, of the California Constitution, has "full powers of organization and government" subject only to very specific areas of legislative control. The UC Regents has the responsibility for certifying this EIR, and approving the LRDP amendment.

If the LRDP amendment to incorporate the CPHP is approved, it would be used to guide the development of the campus site through the next 30 years.

1.1 Purpose of the CPHP EIR

The University has prepared this EIR on the CPHP for the following purposes:

- To inform the general public, the local community, and responsible, trustee and federal public agencies of the nature of the CPHP, its potentially significant environmental effects, feasible measures to mitigate those effects, as well as reasonable and feasible alternatives;
- To enable the University to consider the environmental consequences of implementing the CPHP, adopting the LRDP amendment, and approving those specific projects identified in the CPHP and the Initial Phase improvements;
- To provide project-level review of three of the Initial Phase projects: Irving Street Arrival, RAB, and initial Aldea Housing Densification;
- To serve as a reference document and first tier document for subsequent review of individual projects undertaken to implement the CPHP, including the New Hospital;
- To enable responsible agencies to consider the environmental consequences of those CPHP proposals for which they have a role in approving or issuing permits; and
- To satisfy CEQA requirements.

As described in CEQA and the CEQA Guidelines, public agencies cannot approve projects that may cause a significant environmental impact without adopting mitigation measures or alternatives to avoid or substantially lessen those significant environmental effects, where feasible. In discharging this duty, a public agency has an obligation to balance the project's significant effects on the environment with its benefits, including economic, social, technological, legal and other benefits. This EIR is an informational document, the purpose of which is to identify the potentially significant environmental effects of implementing the CPHP, and to indicate the manner in which those significant effects can be avoided or significantly lessened. The EIR also identifies any significant and unavoidable adverse impacts that cannot be mitigated to a less-than-significant level. Reasonable and feasible alternatives to the CPHP are identified that would avoid or substantially lessen any significant adverse environmental effects of the CPHP.

The Regents or its designee pursuant to its delegation authority is required to consider the information in the EIR, along with any other relevant information, in making its decision to approve the LRDP amendment to incorporate the CPHP and each specific proposed project that may be brought forth for approval in the future to implement the CPHP. Although the EIR does not determine the ultimate decision that will be made regarding implementing the CPHP or any individual CPHP project, CEQA requires the Regents to consider the information in the EIR and make findings regarding each significant effect identified in the EIR.

If determined to comply with CEQA, the Regents will certify the Final EIR prior to approving the proposed LRDP amendment to incorporate the CPHP.

1.2 Relationship of CPHP to 2014 LRDP

On November 20, 2014, the Regents adopted the UCSF 2014 LRDP. The 2014 LRDP serves as a comprehensive physical land use plan and policy document to guide the physical development of the San Francisco campus at its various campus sites, accommodating future increases in enrollment and clinical, academic, and research activities, and increased housing demand at UCSF and meeting its projected clinical, educational and research demand. The existing 2014 LRDP accommodates development anticipated to occur through horizon year 2035. The 2014 LRDP contains objectives to guide decisions for future facilities to meet demands, and it projects the quantities and uses of new building space needed during this time frame.

The 2014 LRDP included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group. These *Principles* formalize UCSF's commitment to communicate with neighbors regarding its potential future development, in order to identify potential community concerns that may arise from UCSF's physical development prior to the time that individual projects are brought forward for approval. In addition, the 2014 LRDP included a Greenhouse Gas Reduction Strategy and a commitment to continue to enhance its Transportation Demand Management Program.

As noted earlier, the 2014 LRDP included a number of development concepts for each of UCSF's main campus sites, including Parnassus Heights. Since the adoption of the 2014 LRDP and certification of the 2014 LRDP Final EIR, UCSF initiated a planning process to re-envision Parnassus Heights as a whole, seeking ways to update and reorganize campus facilities to better respond to UCSF's clinical, educational, and research missions. This planning process resulted in the development of the CPHP that provides a vision for the future of the campus site, ensuring that a modernized Parnassus Heights enhances UCSF's status as an anchor institution in San Francisco and a leading academic medical center in the region, state and nation.

Because the CPHP proposes to modify the Parnassus Heights development plan identified in the 2014 LRDP, an amendment of the 2014 LRDP is proposed. The proposed LRDP amendment would revise those portions of the 2014 LRDP that pertain to Parnassus Heights to incorporate concepts and proposals identified in the CPHP. Proposed changes would include revisions to functional zones; revisions to the space program; updates to the projected population; revisions to existing planning agreements, including revisions to the Regents' Resolution; modification of the UCSF Mount Sutro Open Space Reserve boundary adjacent to the New Hospital; and an update to the Greenhouse Gas Reduction Strategy.

LRDPs typically cover a 10- to 15-year planning period. As indicated above, the UCSF 2014 LRDP addressed development at the entire UCSF campus over an approximately 20-year period, or an approximate horizon year of 2035. However, determining the length of the planning period may depend on a number of factors, including academic and other physical planning efforts; anticipated development cycles; and alignment with local, regional, or state plans and regulations.

If the Regents approve the proposed 2014 LRDP amendment to incorporate the CPHP, the CPHP would become the primary planning document for Parnassus Heights and would guide the development of the Parnassus Heights campus site through the next 30 years, or an approximate horizon year of 2050. Nevertheless, all other UCSF campus sites addressed by the 2014 LRDP would continue to have an approximate horizon year of 2035.

This EIR analyzes the potential significant environmental impacts that could result if the LRDP amendment is approved and the CPHP is implemented at Parnassus Heights campus site. The CPHP EIR will replace in full the program-level impact analysis for the Parnassus Heights campus site contained in the 2014 LRDP FEIR. As some of the information in the 2014 LRDP FEIR is still relevant and has been used to characterize existing conditions and inform the impact analysis in the CPHP EIR, including applying pertinent 2014 LRDP EIR mitigation measures to the CPHP projects, the 2014 LRDP FEIR is incorporated by reference in this EIR and its Initial Study.

1.3 Environmental Review Process

1.3.1 Notice of Preparation and Public Scoping

On January 14, 2020, a Notice of Preparation (NOP), including an Initial Study, was published for the CPHP EIR. A 38-day public comment period ended on February 21, 2020. A copy of the NOP/Initial Study is included in **Appendix A**. A scoping meeting was held on February 10, 2020, at Millberry Union on the Parnassus Heights campus site, to accept public input on environmental topics to be analyzed in the EIR and approaches to the impact analyses. Written comments received on the NOP, and a transcript of the scoping meeting, are included in **Appendix B**.

Pursuant to Section 15063 of the CEQA Guidelines, an Initial Study is a preliminary environmental analysis that may be used by the lead agency to focus an EIR on the environmental effects resulting from a proposed project that may be significant. The Initial Study prepared for the CPHP identified activities proposed under the CPHP that would clearly result in no impact or result in a less-than-significant impact under the CEQA significance criteria. No further analysis beyond that provided in the Initial Study is necessary for those activities and environmental topics.

The Initial Study also identified potential environmental effects that require detailed study in the EIR. As discussed in the Initial Study, these effects consist of less-than-significant impacts that were included in this EIR in order to provide a more comprehensive analysis; impacts for which further analysis is necessary or desirable before determinations about significance could be made; impacts that were potentially significant but may be reduced to less-than-significant levels with the adoption of mitigation measures; and impacts that may be significant and unavoidable.

1.3.2 Draft EIR

This Draft EIR is being circulated to governmental agencies and to interested organizations and individuals that may wish to review and comment on the document. CEQA Guidelines sections 15086(c) and 15096(d) require Responsible Agencies or other public agencies to provide comment on those project activities within the agency’s area of expertise or project activities that are required to be carried out or approved by the agency, and the agency should support those comments with either oral or written documentation. Publication of the Draft EIR initiates a 60-day public review period, during which time UCSF will accept comments on the Draft EIR. The public review period for the Draft EIR for the proposed CPHP is from July 13 through September 11, 2020.

This Draft EIR, including supporting technical appendices and reference materials, can be found at **https://www.ucsf.edu/cphp/community#eir**. The University encourages agencies and interested parties to submit written comments on the Draft EIR electronically via the following link: **EIR@ucsf.edu**. Written comments may also be submitted via regular mail to Diane Wong, UCSF Real Estate - Campus Planning, 654 Minnesota Street, San Francisco, CA 94143-0286.

1.3.3 Comments and Responses and Final EIR

Following the close of the public and agency comment period on this Draft EIR September 11, 2020, the University will prepare responses to all written comments and to oral comments received at the public hearing that raise CEQA-related environmental issues regarding the CPHP and the analysis in this EIR. The responses will be published in the Final EIR. The Final EIR will be considered by the Regents in a public meeting and certified if it is determined to be in compliance with CEQA. Upon certification of the Final EIR, the Regents will consider whether to adopt the proposed LRDP amendment incorporating the CPHP, as well as approve any individual projects that are brought forth at that time.

1.3.4 Mitigation Monitoring and Reporting Program

Throughout this EIR, mitigation measures have been described in language that will facilitate establishment of a Mitigation Monitoring and Reporting Program (MMRP). As required under CEQA (see CEQA Guidelines, Section 15097), an MMRP will be prepared and presented to the Regents at the time of certification of the Final EIR for the proposed CPHP and will identify the specific timing and roles and responsibilities for implementation of adopted mitigation measures.

1.4 CPHP Campus, Public and Agency Outreach

The CPHP planning process was highly participatory and involved a wide variety of viewpoints on the future vision for the Parnassus Heights campus site. Stakeholders internal to UCSF as well as the public were engaged and consulted.

Internal to UCSF, the CPHP process was led by the Parnassus Master Plan Steering Committee (PMP), which was comprised of faculty and senior administrators across the campus, including UCSF Health. PMP members helped define the programmatic strategy and vision for the Parnassus Heights campus site and oversaw the preparation of the Plan. They guided the following:

- Four Faculty Working Groups (Research Space, Education Space, CoLabs, Digital Hub) to develop the vision, concepts, and specific space needs for the various program areas
- Three Visioning Workshops: Blue Sky Ideas, Design Alternatives, and Preferred Alternative
- A Town Hall Meeting attended by more than 300 participants in-person and watched by more than 200 livestream viewers online
- Three surveys with broad internal participation to gather further input
- A Community Relations Subcommittee that oversaw the external community engagement process

UCSF engaged its external community to provide input into the Parnassus Heights campus site re-envisioning effort to identify potential improvements that would further neighborhood goals for the physical environment surrounding the campus site. The Community Working Group comprising 24 members was established, which included community leaders, neighbors, merchants, City representatives, and UCSF staff. Over a thousand community members were engaged through a public survey, community working group meetings, and three open houses.

The external engagement process was organized in three phases:

- *Discovery Phase*: focused on introducing the community to the CPHP concepts and soliciting initial feedback from neighbors on potential campus proposals.
- *Alternatives Phase*: neighbors were presented with three plan options and they gave feedback on the alternatives. The Community Working Group was launched with five meetings through this period.

- *Future Direction Phase*: focused on refining the plan and finalizing the Community Ideas Report, a document memorializing the community feedback received on the plan.

Community Working Group members identified potential improvements that would further the community's goals for the physical environment surrounding the Parnassus Heights campus site. In the Community Ideas Report, the group identified six key areas of focus: Housing, Campus Design, Connectivity with Nature, Multi-modal Mobility, Public Realm, and Programs and Amenities that Benefit the Neighborhood.

Following the conclusion of the Community Working Group effort, UCSF continued its community engagement by convening the Advisory Committee on the Future of Parnassus Heights, comprised of community stakeholders, leaders, neighbors, merchants, and representatives from City agencies and non-profit organizations. The group is advising UCSF on potential neighborhood issues and concerns as UCSF transitions from the concepts explored in the CPHP to the assessment of implementation. Meetings of the Advisory Committee on the Future of Parnassus Heights are open to the public and are ongoing through the summer of 2020.

1.5 Uses of the CPHP EIR

This CPHP EIR will be used by the UC Regents or its designee to evaluate the environmental implications of implementing the proposed CPHP.

A program EIR has been prepared for the CPHP that establishes a framework for tiered or project-program. Accordingly, this EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP, and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. In addition, this EIR includes project-level analysis for the following CPHP Initial Phase developments: Irving Street Arrival, RAB, and initial Aldea Housing Densification; and certain Initial Phase improvements (e.g., utility improvements, Parnassus Avenue Streetscape Plan, building renovations of existing buildings, and community investments). The analysis of these Initial Phase development projects and improvements at the project-level is intended to provide sufficient detail to permit project approval and implementation following certification of the CPHP Final EIR.

UCSF has begun to plan the New Hospital at Parnassus Heights (NHPH or New Hospital) and is projecting the need for a larger hospital than was planned in the 2014 LRDP. The planning, design and construction of a new, world-class hospital at Parnassus Heights would ensure that UCSF can continue to provide premier care to patients in the San Francisco Bay Area and beyond in the 21st century. Broad parameters for the New Hospital project (location, size, mass, height, and projected population) are accounted for at a program level in the CPHP and analyzed in this EIR. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available. It is anticipated that sufficient detail will be available to publish a project-level Draft EIR for the New Hospital in the summer of 2021.

Similarly, when details on CPHP Future Phase projects are known, each Future Phase project would be reviewed in light of the CPHP Final EIR to determine the appropriate level of additional environmental review, if any, needed before approval and implementation of the particular project. If no new significant effects would occur, all significant effects have been adequately addressed, and no new mitigation measures would be required, the later activities within the scope of the approved CPHP could rely on the environmental analysis provided in the program EIR, and no additional environmental analysis would be required; otherwise, additional environmental analysis must be prepared. The additional analysis may rely on the program EIR, as appropriate, for general discussions, some analysis, and cumulative impacts, but would be tiered to allow the analysis to focus on more project- and site-specific impacts of the later project. Appropriate documentation associated with later activities not examined in the program EIR would be prepared pursuant to CEQA and CEQA Guidelines.

1.6 Approvals Required

Comprehensive Parnassus Heights Plan

Regents Approvals

- Certification of the Final EIR
- Adoption of the LRDP amendment:
  - Update Parnassus Heights functional zones, space program and population projections
  - Modify Regents Resolution regarding the Space Ceiling
  - Modify the Mount Sutro Open Space Reserve boundary adjacent to the New Hospital site, if necessary
  - Update UCSF's Greenhouse Gas Reduction Strategy

Individual Building Projects – Irving Street Arrival, RAB and Initial Aldea Housing Densification

Regents Approvals

- Budget
- Design

Bay Area Air Quality Management District

- Stationary source permit for diesel generators

California Office of Statewide Health Planning and Development (OSHPD) Approvals

- Building permit approval and construction oversight for clinical facilities

City Approvals

- Board of Supervisors
  - Bridge and tunnel within City Right-of-Way

    - Lease of air rights for pedestrian bridge above Parnassus Avenue
    - Lease of property for underground tunnel and utilities beneath Parnassus Avenue
- San Francisco Public Works
    - Curb modifications including street parking controls and curb cuts for driveways
    - Community investments within City Right-of-Way (traffic signals, turning lanes, traffic-calming)
- San Francisco Municipal Transportation Agency
    - Community investments within City Right-of-Way (traffic signals, turning lanes, traffic-calming)

1.7 Potential Implications of COVID-19

The current Coronavirus disease 2019 (COVID-19) pandemic has introduced a substantial amount of uncertainty in human lives. The pandemic has directly affected human behavior, requiring people to shelter in place, implement social distancing, and make other changes to the manner in which they live. Indirectly it has affected the economy resulting in reduced consumer spending, business closures, and widespread unemployment. While some of these trends are considered short-term and are expected to reverse, it is likely that there could be more permanent changes in the ways humans live and behave in the post pandemic world. As with humans, institutions such as UCSF are also expected to make changes to the manner in which they operate. As a result of the pandemic, UCSF will likely consider operational changes such as increases in telework and telehealth services, especially primary and secondary health care services. At the same time, the pandemic has highlighted the importance of biomedical research and advanced tertiary and quaternary health care, along with the need for more doctors and increased and improved inpatient facilities. The net effect of the pandemic on the Parnassus Heights campus site development and operations cannot be predicted at this point in time without speculation.

1.8 Report Organization

Chapter 1, ***Introduction***, provides an introduction and overview of the proposed CPHP; describes the intended uses of the EIR, including the review and certification process; and discusses the organization of the EIR.

Chapter 2, ***Summary of Environmental Impacts and Mitigation Measures***, summarizes the environmental impacts that would result from implementation of the proposed CPHP, lists proposed mitigation measures and indicates the level of significance of impacts after mitigation. A summary of the alternatives to the CPHP, and the environmentally superior alternative, is also provided.

Chapter 3, ***Project Description***, provides a detailed description of the proposed CPHP, including relationship of the CPHP to the 2014 LRDP; a discussion of project need and objectives, a description of proposed physical development and growth at the Parnassus Heights campus site under the CPHP, and a description of how development at the campus site under the CPHP varies from that described in the2014 LRDP.

Chapter 4, ***Environmental Setting, Impacts and Mitigation Measures****,* provides with respect to each environmental impact category an introduction to environmental analysis, describes the CPHP's environmental setting, includes a regulatory framework, discusses the methodology used; provides a programmatic impact analysis of the CPHP, project-level analysis of the proposed Irving Street Arrival, RAB, initial Aldea Housing Densification, and certain Initial Phase improvements, and analysis of cumulative impacts; and identifies mitigation measures that would reduce or avoid those impacts as presented.

Chapter 5, ***Other CEQA Considerations***, summarizes significant and unavoidable impacts, significant irreversible environmental changes, and any growth-inducing impacts.

Chapter 6, ***Alternatives***, describes the alternatives to the proposed CPHP that could avoid or substantially lessen significant effects and evaluates their environmental effects in comparison to the proposed CPHP.

Chapter 7, ***Report Preparation***, identifies the persons who prepared the EIR, and those who were consulted during its preparation.

Appendices. The appendices include the NOP and Initial Study, written and oral comments on the NOP, Greenhouse Gas Reduction Strategy Update, Space Needs Assessment, and various supporting technical information for the Draft EIR.

CHAPTER 2
Summary

2.1 Introduction

This EIR assesses the potentially significant environmental effects of implementation of the proposed University of California, San Francisco (UC San Francisco or UCSF) Comprehensive Parnassus Heights Plan (CPHP or Plan).[1]

This EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP, and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. In addition, this EIR includes project-level analysis for the following CPHP Initial Phase developments: Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and certain Initial Phase improvements. The analysis of these Initial Phase development projects and improvements at the project-level is intended to provide sufficient detail to permit project approval and implementation following certification of the CPHP Final EIR. Although also an Initial Phase development, the New Hospital will be the subject of a subsequent project-specific environmental review separately from the CPHP when more details of this project become available. Because the CPHP proposes to modify the Parnassus Heights development plan identified in the 2014 Long Range Development Plan (LRDP), an amendment of the 2014 LRDP is proposed. This amendment would incorporate the CPHP into the 2014 LRDP, replacing the Parnassus Heights chapter in the 2014 LRDP following certification of the CPHP Final EIR and adoption of the LRDP amendment.

The University of California (University or UC) is the "lead agency" for the environmental review of the CPHP and for the LRDP amendment to incorporate concepts and proposals identified in the CPHP.

This summary highlights the major areas of importance in the environmental analysis for the proposed CPHP, as required by Section 15123 of the CEQA Guidelines. It provides a brief description of the CPHP, the project objectives, the significant and unavoidable environmental effects, alternatives to the CPHP, and areas of controversy known to the University. In addition, this chapter summarizes (1) the potential environmental impacts that would occur as the result of implementation of the CPHP; (2) the recommended mitigation measures that would avoid or

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[1] The CPHP was published in October 2019. An Addendum to the CPHP dated June 2020 is now available that provides an update to the plan document, noting the changes to the plan that have resulted from the ongoing work to refine space needs, project parameters, and forecasts.

reduce significant environmental impacts; and (3) the level of impact significance after mitigation measures are implemented.

2.2 Project Description

In November 2014, the Regents of the University of California (Regents) adopted the 2014 LRDP for the San Francisco campus, which outlines projected development levels and patterns for UCSF at all of its main campus sites through the year 2035. The 2014 LRDP Final EIR (FEIR) was certified by the Regents in November 2014 and includes, among other things, analysis of the potential environmental impacts from then-envisioned development at the Parnassus Heights campus site.

The Parnassus Heights campus site is the oldest and largest of the UCSF campus sites. This campus site comprises approximately 107 acres of land located in the Inner Sunset mixed-use neighborhood and adjacent to the Haight Ashbury and Cole Valley neighborhoods in San Francisco. UCSF's facilities are concentrated at the north end of the campus site, where Moffitt and Long Hospitals, five professional programs, clinics, research, housing, parking, and other support uses are located. The 61-acre Mount Sutro Open Space Reserve occupies the central and southern portion of the campus site. The Aldea Housing complex is located in the southeast portion of the campus site adjacent to the Reserve.

The facilities at Parnassus Heights are aging and the site as a whole lacks a cohesive identity. Over the last 20 years, UCSF has invested billions of dollars into acquiring, developing, and supporting its Mission Bay campus site, without commensurate investment in Parnassus Heights. UCSF's investment in Parnassus Heights has not kept pace with its aging facilities or changes in programmatic need, resulting in infrastructure, buildings, and interior spaces that require substantial renewal and investment.

Since the adoption of the 2014 LRDP and certification of the 2014 LRDP FEIR, UCSF undertook a planning process to re-envision and revitalize Parnassus Heights as a whole, to integrate UCSF's clinical, educational, and research missions in ways that promote collaboration and synergies in the UCSF Parnassus Heights campus community. The planning process resulted in the development of CPHP, which provides a long-term development framework for the revitalization of the Parnassus Heights physical environment, and is intended to ensure that a modernized Parnassus Heights enhances UCSF's status as an anchor institution in San Francisco, and a leading academic medical center in the region, state and nation.

Because the CPHP proposes to modify the Parnassus Heights development plans identified in the 2014 LRDP, an amendment of the 2014 LRDP is proposed. In total, the CPHP provides for development of approximately 2.90 million gross square feet (gsf) of new building space at the Parnassus Heights campus site. The net increase in building space at the campus site under the CPHP would be approximately 2.04 million gsf, when accounting for demolition that was approved under the 2014 LRDP but yet not implemented, and potential additional building demolition that would occur under the CPHP. Currently, there is approximately 3.92 million gsf of building space on the campus site. The total amount of campus building space upon full implementation of the CPHP would be approximately 5.97 million gsf (including instruction, research, clinical, and support space; housing; and structured parking), when accounting for existing campus site development, demolition, and proposed new development.

The Plan includes an “Initial Phase” that comprises: 1) Irving Street Arrival improvements, 2) RAB, 3) New Hospital, and 4) initial Aldea Housing Densification, and as well as other Initial Phase improvements. The Initial Phase would account for approximately 1.43 million gsf of new building development, and is anticipated to be completed by approximately year 2030. Beyond the Initial Phase, the “Future Phase” encompasses the remaining approximately 1.47 million gsf of new building development described in the CPHP envisioned for completion by the horizon year of 2050.

2.3 Project Objectives

2.3.1 Parnassus Heights [from the 2014 LRDP and FEIR]

The 2014 LRDP FEIR identified objectives specific to the Parnassus Heights campus site. Those objectives which are listed below remain valid, with the exception of objective E. related to the space ceiling, to be revised as shown as part of the proposed amendment to the LRDP.

A. Continue to promote excellence and leadership in health science education, maintaining the Parnassus Heights campus site as the central location for classroom instruction.

B. Ensure that adequate space is provided to foster collaboration and to facilitate the inter-dependence and connectivity for operational efficiency and effectiveness of instruction, clinical, research and support uses in close physical proximity to each other.

C. Ensure that Long Hospital and the New Hospital Addition have adequate clinical and administrative support and are aligned with education, research and specialized care programs and support that remain at the campus site.

D. Provide additional campus housing and improve campus life amenities including outdoor space.

E. ~~Strive to better achieve the remaining unfulfilled components of the 1976 Regents’ Resolution by reducing space, minimizing population growth, and improving transportation-related programs.~~ Conform to the space limits and population estimates established in the Regents’ Resolution Regarding the Parnassus Heights Campus Site, as amended.

F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.

2.3.2 Objectives for the CPHP

The following are objectives pertaining to the CPHP, including its Initial Phase projects.

Space

- Revitalize the aging Parnassus Heights campus to enhance its place as a premier educational, research, and clinical institution -- one that draws in research and clinical faculty, staff, students, and trainees.
- Fulfill the need for contemporary research, educational, clinical, and support spaces that have been lacking at Parnassus Heights for decades.
- Increase the quantity and improve the quality of research space, to enhance synergies between research and clinical activities at Parnassus Heights for UCSF to maintain its stature as a world-class hub of basic, translational, and clinical research.
- Connect buildings and spaces at multiple levels to foster collaboration that facilitates learning and scientific discoveries.
- Facilitate patient/pedestrian safety and functional efficiency by connecting campus buildings across and under Parnassus Avenue.
- Increase the on-campus supply of housing for students, faculty and staff, thereby minimizing the impact of UCSF-demand for housing on adjoining neighborhoods.

Urban Design

- Improve the campus's functional organization and foster intuitive wayfinding.
- Develop a framework of open spaces that enhance the campus environment by connecting people to nature.
- Create welcoming spaces for enhancing the patient/visitor experience throughout the campus site.
- Enhance connectivity between the campus site and the surrounding community.

Mobility

- Promote sustainable transportation behavior.
- Improve campus circulation options to reduce impacts on the surrounding neighborhood.
- Improve the patient and visitor parking and arrival experience.
- Create safe on- and off-street passenger drop-off zones.
- Enhance Parnassus Avenue as a campus "main street."
- Optimize the use of existing parking supply.
- Enhance overall campus functionality and efficiency.
- Improve campus circulation by way of a service corridor that facilitates loading and deliveries to campus and minimizes impacts of those activities on the neighborhood.

Objectives for Irving Street Arrival

- Create a welcoming experience for patients, visitors, students, and employees arriving at the Parnassus Heights campus site.

- Enhance and speed the pedestrian journey between Irving Street and Parnassus Avenue.
- Provide amenities that benefit the UCSF community and draw in residents from the surrounding neighborhood, such as a reception area, wellness offerings, and convenience retail.

Objectives for the Research and Academic Building

- Provide new state-of-the-art, flexible research space on the Parnassus Heights campus site expediently to replace existing obsolete wet lab space and to satisfy existing demand.
- Site and develop a new research and educational building at a location that is currently underutilized or otherwise a candidate for demolition, to minimize the disruption to campus operations that would be caused by relocation of occupants of heavily-occupied buildings.
- Provide an “empty chair” i.e., space in which to move research teams so that vacated deteriorating space can be renovated.
- Provide replacement space for the seismically deficient School of Nursing building.

Objectives for the New Hospital at Parnassus Heights

- Meet seismic requirements of California Senate Bill 1953 by developing a new, seismically-sound, state-of-the-art inpatient facility.
- Site and develop a new inpatient facility in a way that optimizes operational activities with other clinical facilities at Parnassus Heights, such as Long Hospital, a renovated and repurposed Moffitt Hospital building, and Medical Building 1.
- Increase inpatient beds at Parnassus Heights to address severe constraints on capacity and access to care, and to meet the needs of a growing and aging Bay Area population.
- Increase inpatient beds at Parnassus Heights to allow for the capacity to provide inpatient health care in times of severe strain such as the current pandemic, without resorting to reducing or canceling non-essential surgeries to create bed capacity.
- Develop a new inpatient facility that has sufficient space to accommodate modern regulatory requirements and industry standards of contemporary hospitals, such as construction codes, sizes of operating rooms, ratio of operating rooms to pre-and post-recovery areas, and space for privacy and infection control issues.
- Develop a new inpatient facility that has sufficient space to accommodate modern technology, including telemedicine, robotics, and new diagnostic, imaging, testing, treatment, surgery and laboratory equipment, all requiring substantial infrastructure and space.
- Develop a new inpatient facility that has sufficient space to accommodate patient satisfaction requirements of contemporary hospitals, such as private patient rooms of sufficient size.
- Develop a new inpatient facility that is optimized in its spatial layout to enhance functionality and efficiency.
- Develop spaces for clinical and translational research and learning in or adjacent to clinical areas where patients are located.

Objectives for the Aldea Housing Densification

- Increase the supply of housing for UCSF students and potentially faculty and staff.
- Develop housing in a cost-effective manner in order to make rents as affordable as possible for housing residents.

2.4 Significant and Unavoidable Environmental Effects

Throughout this EIR, significant environmental impacts are identified, and mitigation measures are described that would eliminate the impacts or decrease them to a less-than significant level. Similarly, many impacts are identified that would be less-than-significant without the need for additional mitigation measures. There are, however, a number of impacts that are identified that cannot be eliminated or cannot be decreased to a level of insignificance even with the implementation of feasible mitigation measures. The unavoidable significant environmental impacts of the CPHP are listed in **Table 2-1**; and the unavoidable significant environmental impacts of the Irving Street Arrival, RAB and/or initial Aldea Housing Densification projects are listed in **Table 2-2**, below.

TABLE 2-1
SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED CPHP

Impacts
4.1 Aesthetics, Wind and Shadow
Impact AES-4: Implementation of the CPHP would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.
Impact C-AES-3: Implementation of the CPHP, combined with cumulative projects, would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.
4.2 Air Quality
Impact AIR-2: Operation of campus facilities developed under the CPHP would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
Impact C-AIR-1: Implementation of the CPHP would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
4.4 Cultural Resources and Tribal Cultural Resources
Impact CUL-1: Implementation of the CPHP would result in a substantial adverse change in the significance of known historical resources.
Impact CUL-2: Implementation of the CPHP would result in a substantial adverse change in the significance of potential future historical resources that may become eligible by the full build-out of the CPHP in 2050.
Impact C-CUL-1: Implementation of the CPHP would result in cumulatively considerable impacts on cultural and/or tribal cultural resources, in combination with past, present and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site.
4.11 Noise and Vibration
Impact NOI-1: Construction activities under the CPHP would generate a substantial temporary increase in ambient noise levels in the vicinity of the construction project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
Impact C-NOI-1: Implementation of the CPHP, combined with cumulative construction noise in the project area, would generate a substantial temporary increase in ambient noise levels from construction activity in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

TABLE 2-2
SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS

Impacts
4.1 Aesthetics, Wind and Shadow
Impact AES-4: Implementation of the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.
4.4 Cultural Resources and Tribal Cultural Resources
Impact CUL-1: Implementation of the RAB, Initial Aldea Densification project, and Initial Phase improvements would result in a substantial adverse change in the significance of known historical resources.
4.11 Noise and Vibration
Impact NOI-1: Construction activities under the RAB and initial Aldea Housing Densification projects would generate a substantial temporary increase in ambient noise levels in the vicinity of the construction project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

2.5 Alternatives to the Proposed Project

The following alternatives were analyzed in detail in the EIR and compared to the proposed CPHP. The objective of the alternatives analysis is to determine whether an alternative would feasibly obtain some or most of the project objectives, while avoiding or substantially lessening some of the significant effects of the proposed CPHP.

Alternative 1: No Project Alternative, consisting of:
  1A: No Project - No Development; and
  1B: No Project - Development under 2014 LRDP;

Alternative 2: Reduced Project;

Alternative 3: CPHP including New Hospital - 19-Story Option; and

Alternative 4: CPHP including New Hospital - Phased Option

The comparative evaluation of these alternatives is presented in Chapter 6 of the EIR.

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. If the No Project Alternative is considered the environmentally superior alternative, the EIR must identify which among the others is environmentally superior.

From the alternatives evaluated in this EIR, the environmentally superior alternative would be the No Project - No Development Alternative. Of the remaining alternatives that are not the No Project Alternative, the Reduced Project Alternative is considered the environmentally superior alternative.

2.6 Areas of Controversy

Areas of controversy known to the lead agencies, including issues raised by agencies and the public, must be identified in the Summary of an EIR (14 Cal. Code Regs. Section 15123).

On January 14, 2020, a Notice of Preparation (NOP), including an Initial Study, was published for the CPHP EIR. A 38-day public comment period ended on February 21, 2020. A copy of the NOP/Initial Study is included in **Appendix A**. A scoping meeting was held on February 10, 2020, at Millberry Union on the Parnassus Heights campus site, to accept public input on environmental topics to be analyzed in the EIR and approaches to the impact analyses. Written comments received on the NOP, and a transcript of verbal comments received during the scoping meeting, are included in Appendix B.

Based on the comments received during the public scoping period, issues of concern for the proposed CPHP include the following:

Project Description

- Concerns regarding the scale of the proposed development, including the size and location of the New Hospital; justification for the need for the proposed New Hospital
- Concerns regarding the exceedance of the space ceiling
- Concerns regarding the amount and timing of new housing to be built under the CPHP

Aesthetics, Wind, and Shadow

- Concerns regarding the effects of the New Hospital on nightlighting, shade and wind effects at neighboring residences and within campus site
- Concerns regarding the effects of the proposed Aldea Housing under CPHP on lighting, wind and shade

Air Quality

- Potential health effects from construction dust, particulate matter, and TACs, including emissions, including from construction staging/trucks
- Concerns regarding air quality hazards associated with asbestos disturbed during demolition of older buildings as well as from grading of soils that might contain naturally occurring asbestos
- Concerns regarding operational air emissions, including particulate matter and pathogens from laboratory and hospital ventilation systems and air emissions from mobile sources, including idling trucks
- Concerns regarding air quality effects on Edgewood Drive residences from removal of trees in the Reserve

Biological Resources

- Concerns regarding construction and operational effects of CPHP development on wildlife and habitat in the Reserve, including nightlighting effects on birds; concerns about the effects of additional Aldea Housing on plant and wildlife in the Reserve

Cultural Resources

- Concerns regarding CPHP impacts on Toland Hall murals and the effects of CPHP on Ishi Trail

Geology and Soils

- Concerns regarding slope stability and landslide hazards, including under seismic conditions
- Concerns regarding seismic effects on campus site buildings
- Concern regarding the effects of tunneling and cut and fill of new service corridor; concern regarding excavation

Hazards and Hazardous Materials

- Concerns regarding presence of asbestos in older buildings and in soils
- Concern about increased wildfire risk in the Reserve

Hydrology and Water Quality

- Concern about CPHP effects on groundwater recharge and groundwater quality; concern about changes in surface water drainage, including flooding.

Land Use and Planning

- Concerns regarding the extent of encroachment into the Reserve, including loss of open space; environmental effects of Reserve land swaps
- Concern regarding the proposed use of the Surge parking lot
- Concern that large buildings, including the proposed New Hospital, would be incongruous with character of the surrounding neighborhood

Noise and Vibration

- Concern about construction noise and vibration effects on nearby homes and residents, including noise from construction delivery and haul trucks
- Concerns about noise from utilities, rooftop equipment and generators on Edgewood neighbors
- Concerns about noise from increase in operational traffic (cars, trucks, ambulances, emergency vehicles, and shuttles) on Medical Center Way
- Concern about the removal of trees in the Reserve that buffer noise experienced by Edgewood neighbors
- Concern about noise from helicopters

Population and Housing

- Concern about the effects on housing demand in San Francisco from increased population at Parnassus Heights

Recreation

- Concern about the effects of the New Hospital on recreation in Edgewood area, including Farnsworth steps community area

Transportation

- Concerns about the effects of construction activities on emergency vehicle access and delay, bicycle and pedestrian safety, transit, and road wear and tear; need for controls on truck traffic

- Concerns about the effects of increase in TNC (transportation network companies, i.e., Uber, Lyft, etc.) vehicles on adjacent streets; consider whether ride-sharing companies are viable in the long-term, when prices will rise

- Concern about increased traffic congestion, including effects of increases in traffic on neighboring streets (19th Avenue, Judah/Parnassus, 17th Street, Fell Street, etc.)

- Concern about increase in parking demand and loss of parking supply; suggestion to build new parking structure by Kezar and shuttle people to the hospital

- Numerous safety concerns, including pedestrian safety, especially Irving at 2nd Avenue, and Irving/Carl/Arguello and the need for pedestrian safety improvements; safety of drop-off/pickup area for new childcare facility at Proctor; bicycle safety

- Concern about impacts on public transit and cost to the City

- Request that traffic level of service analysis be completed for the EIR

- Request that a Transportation Demand Management Program be developed to reduce vehicle trips

Utilities and Service Systems

- Concern about increase in water demand and effects on water supply, especially during drought; request that UCSF engage with the San Francisco Public Utilities Commission

- Request for an analysis of the capacity of water, sewer, waste disposal, and power infrastructure to serve CPHP

Cumulative Impacts

- Concern regarding cumulative impacts with other construction projects in the vicinity

- Concerns regarding cumulative impacts on population growth; housing availability and affordability; greenhouse gas emissions; infrastructure; traffic congestion and transit

Alternatives

- Recommendations regarding alternate sites for the New Hospital

- Recommendations to reconsider Millbery Tower for housing; convert UC Hall to housing; make housing more dense and affordable; implement more or all of proposed housing in the Initial Phase; analyze alternative Aldea Housing sites at lower elevations so that no development extends higher than existing rooftops

- Design and analyze a smaller plan that does not exceed the Space Ceiling

- Design and analyze an alternative that considers buffer zones and low scale buildings to transitioning to neighboring residential properties
- Design and analyze a Reduced New Hospital that is no greater in size than the Langley Porter Psychiatric Institute building
- Design and analyze an alternative that places no development outside of existing boundaries of development (no encroachment into Reserve)
- Design and analyze a modified project that converts UC Hall and Moffitt Hospital to housing

Please also see Section 4.0.2, Scope of Analysis, for a discussion of the approach for determining issues within the scope of this EIR.

2.7 Summary of Impacts and Mitigation Measures

Table 2-3 summarizes the impacts of the proposed CPHP, identifies the significance determination of each impact, and presents the full text of the identified mitigation measures. Similarly, **Table 2-4** summarizes the corresponding impacts of the proposed Irving Street Arrival, RAB and initial Aldea Densification projects, and Initial Phase improvements, identifies the significance determination of each impact for the respective project, and presents the full text of the applicable mitigation measures and improvement measures for each project.

TABLE 2-3
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.1 Aesthetics, Wind, and Shadow			
Impact AES-1: Development under the CPHP would not have a substantial adverse effect on a scenic vista.	LTS	None required.	NA
Impact AES-2: Development under the CPHP would occur in an urbanized area and would not conflict with applicable zoning and other regulations governing scenic quality.	LTS	None required.	NA
Impact AES-3: Implementation of the CPHP would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	S	**CPHP Mitigation Measure AES-3: Minimize light and glare resulting from new buildings.** Light and glare from buildings shall be minimized through the orientation of the building, use of landscaping materials and choice of primary facade materials. Design standards and guidelines to minimize light and glare shall be adopted for the new buildings, including: • Reflective metal walls and mirrored glass walls shall not be used as primary building materials for facades. • Installation of illuminated building signage shall strive to be consistent with UCSF design guidelines and/or City Planning Code sign standards for illumination. • Exterior light fixtures shall be configured to emphasize close spacing and lower intensity light. Light fixtures shall use luminaries that do not direct the cone of light towards off-campus structures. • Design parking structure lighting to minimize off-site glare.	LTS
Impact AES-4: Implementation of the CPHP would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.	S	**CPHP Mitigation Measure AES-4: Design new buildings to minimize wind impacts at pedestrian level.** Prior to the approval of the design of individual buildings to be developed pursuant to the CPHP and for which one or more building facades would have a height of 80 feet or more, UCSF shall engage a qualified wind consultant to conduct wind tunnel testing of the proposed building(s) to determine whether the building(s) would result in new exceedance(s) of the City of San Francisco's 26-mph pedestrian wind hazard criterion. The wind tunnel testing shall be conducted for the building(s) under consideration in the context of then-existing conditions as well as in the context of conditions representative of then-anticipated CPHP buildout (the buildout scenario in the EIR, as may be modified from time to time by UCSF to reflect actual building designs known at the time) so as to determine whether the individual building(s) and/or the buildout condition would result in exceedances of the wind hazard criterion. If the wind tunnel analysis determines that the building(s)' design or buildout conditions would increase the hours of wind hazard exceedance or the number of test points subject to hazardous winds, compared to then-existing conditions, UCSF shall work with the wind consultant to identify feasible mitigation strategies, including design changes (e.g., setbacks, rounded/chamfered building corners, stepped facades, etc.), to eliminate or reduce wind hazards to the maximum feasible extent. If UCSF finds that these changes or other wind speed	SU

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.1 Aesthetics, Wind, and Shadow (cont.)			
Impact AES-4 (cont.)		reduction strategies are not feasible as they would unduly restrict the proposed building's space program, result in operational inefficiencies, and/or substantially higher costs, the building(s) may nonetheless be approved provided that the project incorporates wind speed reduction strategies to the maximum feasible extent, as determined by UCSF in consultation with the wind consultant. Wind speed reduction strategies could also include features such as landscaping, localized installation of porous/solid screens, installation of canopies along building frontages, and the like.	
Impact AES-5: Implementation of the CPHP would not create new shadow in a manner that would substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	LTS	None required.	NA
Impact C-AES-1: Implementation of the CPHP, combined with cumulative projects, would not have a substantial adverse effect on a scenic vista or conflict with applicable zoning and other regulations governing scenic quality.	LTS	None required.	NA
Impact C-AES-2: Implementation of the CPHP, combined with cumulative projects, would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	LTS	None required.	NA
Impact C-AES-3: Implementation of the CPHP, combined with cumulative projects, would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.	S	Implement CPHP Mitigation Measure AES-4.	SU
Impact C-AES-4: Implementation of the CPHP, combined with cumulative projects, would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	LTS	None required.	NA
EIR Section 4.2 Air Quality			
Impact AIR-1: Construction of campus development under the CPHP would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	S	**CPHP Mitigation Measure AIR-1a: Clean Construction Equipment for CPHP Projects.** The construction contractor(s) shall develop a plan demonstrating that the off-road equipment used to on-site to construct CPHP projects would achieve a fleet-wide average 80 percent reduction in NO_X exhaust emissions, compared to uncontrolled aggregate statewide emission rates for similar equipment. One feasible plan to achieve this reduction would include the following: • All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the project site for more than two days continuously shall be equipped with engines meeting USEPA emissions standards for Tier 4 engines or equivalent;	LTS

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.2 Air Quality (cont.)			
Impact AIR-1 (cont.)		• Use of electrically-powered construction equipment to the degree available and feasible; and Alternatively, if UCSF can demonstrate through preparation of an air quality assessment report prepared by an air quality specialist that large or contemporaneous CPHP construction projects would not exceed BAAQMD thresholds, then the above mitigation requirements may be waived. **CPHP Mitigation Measure AIR-1b: Best Management Practices for Controlling Particulate Emissions during Construction.** The following BAAQMD Best Management Practices for particulate control will be required for all construction activities related to CPHP projects (BAAQMD, 2017). These measures will reduce particulate emissions primarily during soil movement, grading and demolition activities but also during vehicle and equipment movement on unpaved project sites. • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, § 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at UCSF regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD’s telephone number shall also be visible to ensure compliance with applicable regulations.	

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.2 Air Quality (cont.)			
Impact AIR-2: Operation of campus facilities developed under the CPHP would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	S	**CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures** The following measures, most of which are identified in the 2017 BAAQMD *CEQA Guidelines,* shall be reviewed and incorporated into specific development projects if not already included in the development project or otherwise in place at the Parnassus Heights campus site: • Provide and maintain secure bike parking (at least one space per 20 vehicle spaces); • Provide and maintain showers and changing facilities for employees; • Provide information on transportation alternatives to employees; • Provide and maintain preferential carpool and vanpool parking for non-residential uses; • Increase building energy efficiency below Title 24 (reduces NO_X related to natural gas combustion); • Require use of electrically powered landscape equipment, where feasible; • Use low VOC architectural coatings in maintaining buildings; • Meet California Green Building Code standards in new construction (reduces NOx related to natural gas combustion); and • Provide electric vehicle charging stations in existing parking areas to promote the use of zero emission vehicles. • Equip all truck loading and unloading docks with a power outlet for every two-dock doors. Signs shall be posted stating "Diesel trucks are prohibited from idling more than 5 minutes and trucks requiring auxiliary power shall connect to the electrical outlets to run auxiliary equipment. **CPHP Mitigation Measure AIR-2b: TDM Program Enhancements** To reduce on- and off-campus vehicle trips and resulting air quality impacts, UCSF will implement TDM program enhancements such that the number of new average daily vehicle trips to and from the campus site is reduced by at least 15 percent from the estimated new average daily vehicle trips without these program enhancements. TDM program enhancements/strategies shall initially include the following: 1. *New shuttle connections to regional transit (e.g. BART):* Implement new UCSF shuttle service between the campus site and regional transit stations (e.g. BART, Caltrain) to make regional transit a more attractive option for employees, patients, and visitors.	SU

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.2 Air Quality (cont.)			
Impact AIR-2 (cont.)		2. *Expand telecommuting and flexible hours program for employees:* Allow employees in appropriate positions to telecommute from home and/or work a modified schedule such that they are commuting to the campus less frequently per week. 3. *Improved telehealth program for patients:* Implement an expanded telehealth program to reduce the need for patients to travel to the campus site for appointments. 4. *Carpool and vanpool credits and incentives:* Provide cash allowance or discounted parking permit rates for individuals who carpool rather than drive alone; reduce monthly fares for Vanpool riders and drivers. 5. *Discontinue monthly parking permits:* Discontinue issuance of monthly parking permits to make commute travel mode a daily decision by shifting to daily parking permits. 6. *Enhanced patient TDM program*: Enhance information provided to patients regarding travel options to the campus site, including discussion of limited parking environment and public transit options. 7. *TNC to transit subsidy*: Provide cash allowance for individuals to use TNC to travel to transit rather drive alone. UCSF may also make improvements to its existing TDM measures to achieve the targeted reduction in daily vehicle trips. In addition, if other new and/or improved TDM strategies are identified in the future, UCSF may implement such strategies in place of or in addition to the ones listed above. The TDM program enhancements/strategies shall be monitored annually for their combined effectiveness in meeting the performance standard set forth above. The annual monitoring and reporting program shall include: (a) an annual calculation of baseline new average daily vehicle trips without TDM program enhancements for each year starting in 2030[2]; (b) an annual calculation of new average daily vehicle trips with the TDM program enhancements; and (c) a comparison of the results of (a) and (b) against the "existing" average daily vehicle trips to determine whether the performance standard of a 15 percent reduction in new average daily vehicle trips is achieved. As this significant impact would likely occur upon the completion of the New Hospital, the annual monitoring and reporting program shall be commenced upon the completion and occupancy of the Initial Phase projects, i.e., after 2030, and shall be conducted by a qualified transportation engineer, using data from UCSF's regularly administered travel behavior surveys for employee commute, patient and visitor travel, and resident travel. Using these survey results, the monitoring report will gauge the effectiveness of implemented TDM program	

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[2] The baseline new average daily vehicle trips without TDM program enhancements would be based on the average daily vehicle trip estimates for "Existing Conditions" and "CPHP (Future Phase)" scenarios, as presented in Appendix TRANS.

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.2 Air Quality (cont.)			
Impact AIR-2 (cont.)		enhancements at achieving the required 15 percent reduction in new average daily vehicle trips. If the annual performance standard is met, no further action from UCSF is required until the next year. In the event that the performance standard is not met, UCSF will examine the TDM program to identify areas of improvement and institute changes, which shall be evaluated for their effectiveness in the following year's monitoring report.	
Impact AIR-3: Construction activities under the CPHP could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.	S	**CPHP Mitigation Measure AIR-3: *Project-Specific Health Risk Analysis.*** UCSF shall prepare and submit to UCOP for review and approval, a project-specific health risk analysis demonstrating that project construction activities will not result in a significant acute, chronic non-cancer or cancer-related health risk to sensitive receptors. This requirement shall apply to construction projects in excess of 12 months of active construction (i.e., exclusive of interior renovations) and within 1,000 feet of sensitive receptors. As a performance standard, any subsequent project-specific health risk analysis must demonstrate an excess cancer risk level of 10-in-1 million or less, a non-cancer (i.e., chronic or acute) hazard index of 1.0 or less, and an incremental increase an annual average $PM_{2.5}$ concentrations of no more than 0.3 microgram per cubic meter.	LTS
Impact AIR-4: Campus site operations under the CPHP could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.	S	**CPHP Mitigation Measure AIR-4a: *Laboratory Fume Hood Emission Control.*** For any individual project that contains more than 25,000 square feet of emissions-generating laboratory space within a building and 50 fume hoods, UCSF shall conduct a health risk screening analysis and obtain a permit from BAAQMD for the proposed individual projects; this permit may be required either prior to or as a condition of approval of the proposed individual project. In accordance with BAAQMD Rules 2-1 and 2-5, new sources of emissions must implement Best Available Control Technology for Toxics (T-BACT) if individual source risks exceed 1.0 in a million for cancer and/or chronic hazard index is greater than 0.20. Additionally, a permit will be denied if project cancer risk exceeds 10.0 in a million or if the chronic or acute hazard index exceeds 1.0. **CPHP Mitigation Measure AIR-4b:** *Design for Diesel Delivery Truck Emissions Minimization.* UCSF shall incorporate the following health risk reduction measures into the project design and construction contracts (as applicable) in order to reduce the potential health risk due to exposure to toxic air contaminant emissions from diesel trucks. Emissions from CPHP-associated diesel trucks shall be reduced through implementing the following measures, as feasible: • Install electrical hook-ups for diesel trucks at loading docks. • Require trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards. • Require truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels. • Prohibit trucks from idling for more than two minutes to the extent feasible.	LTS

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.2 Air Quality (cont.)			
Impact AIR-4 (cont.)		- Establish truck routes to avoid sensitive receptors in the project to the extent feasible. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented	
Impact AIR-5: The CPHP could conflict with or obstruct implementation of the *2017 Clean Air Plan*.	S	**CPHP Mitigation Measure AIR-5: Implement “cool roof and pavement” design elements.** UCSF shall implement “cool parking” that promotes the use of cool surface treatments for new parking facilities, as well existing surface lots undergoing resurfacing. Additionally, new building construction shall include low-albedo roofing materials to the extent it can reduce energy demand.	LTS
Impact C-AIR-1: Implementation of the CPHP would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	S	Implement CPHP Mitigation Measure AIR-2a and AIR-2b.	SU
Impact C-AIR-2: Implementation of the CPHP could contribute considerably to cumulative emissions of TACs and $PM_{2.5}$ that could expose sensitive receptors to substantial pollutant concentrations or health risks.	S	Implement CPHP Mitigation Measures AIR-1a and AIR-1b.	LTS
EIR Section 4.3 Biological Resources			
Impact BIO-1: Implementation of the CPHP would not have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	S	**CPHP Mitigation Measure BIO-1a. Botanical Surveys** • Within suitable habitat for special-status plant species (open gravel areas along roadsides and hillsides for coastal triquetrella), a qualified biologist approved by CDFW shall conduct a focused survey for all species with potential to be present prior to ground disturbance. If no special-status plants are observed, no further action is required. • If special-status plant species, including coastal triquetrella are observed, the plants will be avoided with a suitable buffer, determined in coordination with CDFW The buffer zone shall be clearly demarcated using exclusion fencing. If establishing an avoidance buffer is not feasible, individual plants shall be transplanted to an area with suitable physical and biological conditions outside of the work area and monitored and adaptively managed for five years. **CPHP Mitigation Measure BIO-1b. Protection of Monarch Butterflies** • Prior to demolition activities, a qualified biologist familiar with monarch butterfly behavior and habitat shall conduct a preconstruction survey for the presence of overwintering monarch butterfly aggregations. The survey shall be conducted in December or January during the period when overwintering aggregations appear. Should an overwintering aggregation be identified in trees surrounding proposed work sites within or adjacent to the Reserve, a 200-foot buffer shall be established around the occupied trees until the aggregation has dispersed, and construction within the buffer zone will be avoided for the duration of the overwintering period.	LTS

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.3 Biological Resources (cont.)			
Impact BIO-1 (cont.)		**CPHP Mitigation Measure BIO-1c. Protection of Nesting Birds** • Tree and vegetation removal or pruning associated with project construction and commencement of outdoor project construction activities shall be avoided from February 1 through August 31, the primary local bird nesting season, to the extent feasible. If tree and vegetation removal or pruning associated with project construction is proposed during the nesting period, within seven days prior to the proposed start of construction activities a qualified biologist shall conduct a nesting bird survey of all potential habitat at the construction site and within 250 feet of the perimeter of the construction site. • If any active nests are detected during the pre-construction survey, the qualified biologist shall recommend a work-exclusion buffer zone that shall be designated around the active nest to allow for both the successful fledging of the birds and initiation of work on some portions of the project site. A qualified biologist shall monitor any occupied nest located within a protective buffer zone in order to determine if the designated buffer zone is effective and when the buffer zone is no longer needed. If the buffer zone is determined to be ineffective, its size shall be increased until it is effective, or work within one-quarter mile of the nest shall cease until the young have fledged and are independent of the nest. **CPHP Mitigation Measure BIO-1d. Protection of Roosting Bats** • Prior to project construction, a qualified bat biologist shall conduct a pre-construction survey for roosting bats in trees to be removed or pruned and structures to be demolished within the work area and within a 50-foot radius of the work area. If no roosting bats are found, no further action is required. • If a non-maternal roost of bats is found in a tree or structure to be removed or demolished as part of project construction, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity. Removal or demolition should occur no sooner than at least two nights after the initial minor site modification (to alter airflow). This action allows bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of disturbance. Departure of the bats from the construction area shall be confirmed with a follow-up survey by a qualified bat biologist prior to start of construction. • If active maternity roosts are found in trees or structures that will be removed or demolished as part of project construction, tree removal or demolition of that tree or structure shall commence and be completed before maternity roosting colonies form (generally before March 1), or shall not commence until after young are flying (generally after July 31). Active maternity roosts shall not be disturbed between March 1 and July 31.	

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.3 Biological Resources (cont.)			
Impact BIO-1 (cont.)		**CPHP Mitigation Measure BIO-1e. Worker Education** • A qualified biologist shall provide training to all construction workers prior to starting work on plan components. The training shall cover special-status species with potential to be found onsite, avoidance measures to be undertaken if a species is found, and best management practices for site housekeeping.	
Impact BIO-2: Implementation of the CPHP would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	S	**Mitigation Measure BIO-2a: Prevention of Harm to Migrating Birds During Construction.** Construction areas requiring lights shall implement the following measures to the extent feasible: • Construction-related lighting shall be fully shielded and focused down to ensure no significant illumination passes beyond the immediate work area. Lighting shall be positioned around the perimeter of the work area positioned toward activity and not surrounding habitat of the Reserve. • Yellow or orange light shall be used where possible. • Construction personnel shall reduce the amount of lighting to the minimum necessary to safely accomplish the work. • Night construction near suitable habitat for nesting and migratory birds and bats (i.e. the Reserve forest and understory vegetation) shall be avoided during nesting season (February 15 – August 15). If night construction near these areas cannot be avoided, light shall not be allowed to shine directly into suitable habitat. **Mitigation Measure BIO-2b: Bird-Safe Building Treatments.** Building designs shall: • Avoid installation of lighting in areas where not required for public safety. • Examine and adopt alternatives to bright, all-night, floor-wide lighting when interior lights would be visible from the exterior or when exterior lights must be left on at night, including: – Installing motion-sensitive lighting – Installing task lighting – Installing programmable timers • Installing fixtures that use lower-wattage, sodium, and yellow-red spectrum lighting (if compatible with personnel safety requirements). • Where exterior lights are to be left on at night, install fully shielded lights to contain and direct light away from the sky. • Employ glazing options such as use of either fritted glass, Dichroic glass, etched glass, translucent glass, or glass that reflects ultraviolet light in appropriate portions of the building façade.	LTS

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.3 Biological Resources (cont.)			
Impact BIO-2 (cont.)		• Minimize light and glare resulting from new buildings through the orientation of the building, use of landscaping materials and choice of primary façade materials. Design standards and guidelines to minimize light and glare shall be adopted for the new buildings, including: reflective metal walls and mirrored glass walls shall not be used as primary building materials for facades.	
Impact BIO-3: Implementation of the CPHP would not conflict with any applicable local policies or ordinances protecting biological resources, including exceeding the LRDP EIR standard of significance by damaging or removing heritage or landmark trees or native oak trees of a diameter specified in a local ordinance.	LTS	None required.	NA
Impact C-BIO-1: Implementation of the CPHP would not result in cumulatively considerable impacts on biological resources, in combination with past, present and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site.	S	Implement CPHP Mitigation Measures BIO-1a through 1e, and BIO-2a and 2b.	LTS
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources			
Impact CUL-1: Implementation of the CPHP would result in a substantial adverse change in the significance of known historical resources.	S	**CPHP Mitigation Measure CUL-1a: Identify Character-Defining Features.** Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards identifies character-defining features of each historical resource. Despite being presumed or having been previously determined eligible for listing in the National Register and/or California Register, character-defining features of the historical resources that would be demolished or may be significantly altered under the CPHP have not been explicitly or adequately identified. According to guidance from the National Park Service, a historical resource "must retain… the essential physical features [i.e., character-defining features] that enable it to convey its historic identity. The essential physical features are those features that define both *why* a property is significant…and *when* it was significant" (National Park Service, 1997). The identification of character-defining features is necessary for complete documentation of each historical resource as well as appropriate public interpretation and salvage plans. **CPHP Mitigation Measure CUL-1b: Document Historical Resources Prior to Demolition or Alteration.** Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards thoroughly documents each building and associated landscaping and setting. Documentation shall include still photography and a written documentary record of the building to the National Park Service's standards of the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER), including accurate scaled mapping and architectural descriptions. If available, scaled	SU

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TABLE 2-3 (CONTINUED) SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)			
Impact CUL-1 (cont.)		architectural plans will also be included. Photos include large-format (4”x5”) black-and-white negatives and 8”x10” enlargements. Digital photography may be substituted for large-format negative photography if archived locally. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate. Copies of the records shall be submitted to the Northwest Information Center at Sonoma State University and the UCSF Kalmanovitz Library Archives and Special Collections. **CPHP Mitigation Measure CUL-1c: Public Interpretation and Salvage Plan.** Prior to any demolition or significant alteration activities that would remove character-defining features of, or demolish, an individual historical resource on the project site, UCSF shall determine whether any such features may be salvaged, in whole or in part, during demolition/alteration. If it is determined that features are present that will be salvaged, a Salvage Plan shall be prepared by a qualified architectural historian or historic architect who meets the Secretary of the Interior’s Professional Qualification Standards and presented to UCSF Planning staff. Prior to any demolition or significant alteration activities that would remove character-defining features of, or demolish, an individual historical resource on the project site, UCSF shall prepare a plan for interpretive displays. The specific location, media, and other characteristics of such interpretive display(s) shall be included in this proposal. The historic interpretation plan shall be prepared in coordination with an architectural historian or historian who meets the Secretary of the Interior’s Professional Qualification Standards and an exhibit designer or landscape architect with historical interpretation design experience. Interpretive display(s) shall document the individually eligible resources to be demolished or altered. The interpretative plan should also explore contributing to digital platforms that are publicly accessible. A proposal describing the general parameters of the interpretive program and the substance, media, and other elements of such interpretive display shall be approved by UCSF Planning staff prior to commencement of any demolition activities. Following any demolition or alteration activities within the project site, UCSF shall provide within publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the individual historical resources. **CPHP Mitigation Measure CUL-1d: Digital-Imaging and Virtual Preservation of Zakheim Murals in UC Hall.** Prior to the commencement of demolition activities at UC Hall, UCSF Planning staff shall work with a conservator experienced in digital preservation to develop and implement a digital imaging and virtual preservation proposal for the Zakheim murals in UC Hall. The proposal shall include a plan to digitally preserve the Zakheim murals through high-resolution three-dimensional digital recording that would be made available both online and through a planned interpretive virtual reality interpretive exhibit on campus to be maintained by the UCSF Library’s Archives and Special Collections department. UCSF Planning staff shall ensure that the digital-imaging and virtual preservation activities are completed prior to any demolition activities in Toland Hall.	

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)			
Impact CUL-2: Implementation of the CPHP would result in a substantial adverse change in the significance of potential future historical resources that may become eligible by the full build-out of the CPHP in 2050.	S	Implement CPHP Mitigation Measures CUL-1a through -1c.	SU
Impact CUL-3: Implementation of the CPHP could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	S	**CPHP Mitigation Measure CUL-3: Inadvertent Discovery of Archaeological Resources and Tribal Cultural Resources.** Prior to commencement of construction activities, all on-site personnel shall attend a mandatory pre-project training to outline the general archaeological and tribal cultural sensitivity of the project area. The training will include a description of the types of resources that could be encountered and the procedures to follow in the event of an inadvertent discovery of resources. If prehistoric or historic-era archaeological resources are encountered by construction personnel during ground-disturbing activities, all construction activities within 100 feet shall halt and the contractor shall notify the UCSF Environmental Coordinator (EC). The UCSF EC shall retain a Secretary of the Interior-qualified archaeologist (qualified archaeologist) to inspect the find within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource, construction shall cease in an area determined by the qualified archaeologist until a mitigation plan has been prepared and implemented [CEQA Guidelines 15064.5(b)(4)]. If the find is a potential tribal cultural resource, the UCSF EC shall contact a Native American representative or representatives (as provided by the Native American Heritage Commission) [PRC 21074(2)(c)]. The qualified archaeologist, in consultation with the UCSF EC and the Native American representative(s), shall determine when construction can resume. If the resource is determined to be a historical resource or a unique archaeological resource, the preferred mitigation shall be preservation in place. In accordance with PRC Section 21083.2(b), preservation in place shall be accomplished through: (1) modifying the construction plan to avoid the resource; (2) incorporating the resource within open space; (3) capping and covering the resource; or (4) deeding the resource site into a permanent conservation easement. If preservation in place is not feasible, the qualified archaeologist, in consultation with the UCSF EC and the Native American representative(s) (if the resource is prehistoric), shall prepare and implement a detailed treatment plan. In all cases treatment will be carried out with dignity and respect (including protecting the cultural character, traditional use, and confidentiality of the resource). For prehistoric resources, the Native American representative(s) will be consulted on the research approach, methods, and whether burial or data recovery or alternative mitigation is appropriate for the find. Treatment for most resources could consist of (but shall not be limited to) sample excavation, site documentation, and historical research, as appropriate to the discovered prehistoric resource. The treatment plan shall include provisions for analysis of data in a regional context as appropriate to the discovered prehistoric resource, reporting of results within a timely manner, and dissemination of reports to local and state repositories, libraries, and interested professionals.	LTS

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LTS = Less than Significant impact
NI = No Impact
NA = Not applicable

TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)			
Impact CUL-4: Implementation of the CPHP could disturb human remains, including those interred outside of dedicated cemeteries.	S	**CPHP Mitigation Measure CUL-4: Inadvertent Discovery of Human Remains.** In the event of discovery or recognition of any human remains during ground-disturbing activities, treatment shall comply with all applicable state and federal laws. All construction activities within 100 feet shall halt and the contractor shall notify the UCSF Environmental Coordinator (EC). In accordance with PRC 5097.98, the UCSF EC shall contact the San Francisco Office of the Medical Examiner (Medical Examiner) to determine that no investigation of the cause of death is required. The Medical Examiner shall contact the Native American Heritage Commission (NAHC) within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American. Within 48 hours, the MLD shall make recommendations to the UCSF EC of the appropriate means of treating the human remains and any grave goods. Whenever the NAHC is unable to identify an MLD, the MLD fails to make a recommendation, or the parties are unable to agree on the appropriate treatment measures, the human remains shall be reinterred with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.	LTS
Impact CUL-5: Implementation of the CPHP could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.	S	Implement CPHP Mitigation Measure CUL-3.	LTS
Impact C-CUL-1: Implementation of the CPHP would result in cumulatively considerable impacts on cultural and/or tribal cultural resources, in combination with past, present and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site.	SUM for Historical Resources; LTSM for Archaeological Resources, Human Remains, and Tribal Cultural Resources	**Historic Resources.** Implement CPHP Mitigation Measures CUL-1a through -1d. **Archaeological Resources, Human Remains, and Tribal Cultural Resources.** Implement CPHP Mitigation Measures CUL-3 and CUL-4.	SU LTS
EIR Section 4.5 Energy			
Impact ENE-1: Implementation of the CPHP would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	LTS	None required.	NA
Impact ENE-2: Implementation of the CPHP would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.5 Energy (cont.)			
Impact C-ENE-1: The CPHP, combined with cumulative development in the Parnassus Heights campus site vicinity and citywide, would not result in significant cumulative energy impacts.	LTS	None required.	NA
EIR Section 4.6 Geology and Soils			
Impact GEO-1: New development under the CPHP would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	LTS	None required.	NA
Impact GEO-2: New development under the CPHP would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic related ground failure including liquefaction.	LTS	None required.	NA
Impact GEO-3: New development under the CPHP would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides.	S	**CPHP Mitigation Measure GEO-3:** UCSF shall implement the following geotechnical recommendations contained within the Rutherford & Chekene March 2019 report: • Remove selected trees located on or at the crest of steep rock slopes on which tree root wedging decreases stability. Determination of specific trees to be removed shall be made in association with a certified arborist and state licensed geotechnical engineer or engineering geologist. Removal will involve cutting trees and leaving stumps such that the root system can rot in situ with minimal disturbance to the surface geology. • Conduct qualitative monitoring of identified slopes by a state licensed geotechnical engineer or engineering geologist or as directed by said professional. Monitoring shall occur, at a minimum, after each moderate to major storm or earthquake, as defined by the geotechnical professional. The geotechnical professional shall submit a report of findings to UCSF that includes recommendations for additional slope stability improvements, if deemed necessary, to maintain continued safety in accordance with geotechnical standards and building code requirements.	LTS
Impact GEO-4: Construction and operation of development associated with the CPHP would not have the potential to result in the substantial erosion or the loss of topsoil.	LTS	None required.	NA
Impact GEO-5: Development and redevelopment associated with the CPHP would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.6 Geology and Soils (cont.)			
Impact GEO-6: Construction associated with the CPHP could have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	S	**CPHP Mitigation Measure GEO-6:** Prior to commencement of construction activities, all on-site personnel shall attend a mandatory pre-project training to outline the general paleontological sensitivity of the project area. The training will include a description of the types of resources that could be encountered and the procedures to follow in the event of an inadvertent discovery of resources. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist meeting the Society of Vertebrate Paleontology (SVP) Standards can assess the nature and importance of the find and, if necessary, develop appropriate salvage measures in conformance with SVP standards (2010). If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA. Any discovered paleontological resources that are determined by the qualified paleontologist to be "unique" in accordance with CEQA shall be given appropriate salvage measures in conformance with SVP standards (2010).	LTS
Impact C-GEO-1: Implementation of the CPHP could have the potential to combine with past, present and reasonably foreseeable future projects to result in cumulatively considerable impacts related to geology and soils.	S	Implement CPHP Mitigation Measure GEO-6.	LTS
EIR Section 4.7 Greenhouse Gas Emissions			
Impact GHG-1: Implementation of the CPHP would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	S	**CPHP Mitigation Measure GHG-1a: Emission Reduction Measures to supplement those currently included in GHGRS update that would occur as part of the proposed amendment to the 2014 LRDP under the CPHP.** The GHGRS update shall include the following measure identified in Table 4.7-4 to address long-term GHG emissions reductions: • ***Water Conservation Strategies*****:** Campus design principle WC2 of the CPHP identifies storm water capture and treatment to reduce water demand. UCSF shall amend the GHGRS to include a Water Conservation Measure based on storm water capture and the associated reduction in outdoor water demand. A year 2050 target of 3 percent reduction of overall outdoor water use shall be established. **CPHP Mitigation Measure GHG-1b:** Implement CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures, CPHP Mitigation Measure AIR-2b: TDM Program Enhancements, CPHP Mitigation Measure AIR-4b: Design for Diesel Delivery Truck Emissions Minimization, and CPHP Mitigation Measure AIR-5: Implement "cool roof and pavement" design elements to further reduce emissions from individual projects and mobile sources.	LTS

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.7 Greenhouse Gas Emissions (cont.)			
Impact GHG-1 (cont.)		**CPHP Mitigation Measure GHG-1c: Monitor emissions annually and acquire carbon offset credits in conformance with CARB guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP.** As part of this mitigation measure, UCSF is making the following separate, though overlapping, GHG emission reduction commitments: (1) As a CARB-covered entity, UCSF will maintain compliance with CARB's cap and trade program; (2) Per existing UC Policy, UCSF's Scope 1 and Scope 2 GHG emissions shall, commencing in 2025, be entirely carbon neutral; (3) Also per existing UC Policy, commencing in 2020, UCSF's Scope 1, Scope 2, and Scope 3 emissions from commuters and air travel shall be voluntarily offset; and (4) UCSF's total GHG operational emissions from all Scope 1, 2, and 3 sources (as defined in this EIR) shall not exceed the Parnassus Heights campus's baseline emissions from these sources in 2018. Each of these commitments is described in more detail below. **Compliance with CARB's Cap and Trade Program:** Any carbon offset credits purchased for the purpose of compliance with CARB's cap and trade program shall be purchased from an accredited carbon credit market. Such offset credits (or California Carbon Offsets) shall be registered with, and retired[3] by an Offset Project Registry, as defined in 17 California Code of Regulations § 95802(a), approved by the California Air Resources Board such as, but not limited to, Climate Action Reserve, American Carbon Registry or Verra (formerly Verified Carbon Standard). In order to demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 California Code of Regulations § 95802(a), UCSF shall document in its annual report: (i) the protocol used to develop those credits, and (ii) the third-party verification report concerning those credits. As and when the credits are retired, UCSF shall document in its annual report the unique serial numbers of those credits showing that they have been retired. **Compliance with UC Policy:** Compliance with UC's policies for carbon neutrality by 2025 and UC's own policy to reduce Scope 1, 2, and transportation-related Scope 3 emissions below 1990 levels pursuant to AB 32 will be accomplished through reductions in direct emissions, the purchase of renewable electricity and possibly biomethane, and the purchase of carbon offset credits. UCSF will purchase voluntary carbon offset credits as the final action to reach the GHG emission reduction targets. As part of the UC Carbon Neutrality Initiative, internal guidelines have been developed to ensure that any use of offsets for this purpose will result in additional, verified GHG emissions reductions from actions that align, as much as possible, with UC's research, teaching, and public service mission. Specifically, any voluntary carbon offset credits used by UCSF to mitigate GHG emissions will:	

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[3] When Climate Reserve Tonnes (CRTs) are transferred to a retirement account in the Reserve System, they are considered retired. Retirement accounts are permanent and locked to prevent a retired CRT from being transferred again. CRTs are retired when they have been used to offset an equivalent ton of emissions or have been removed from further transactions on behalf of the environment.

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.7 Greenhouse Gas Emissions (cont.)			
Impact GHG-1 (cont.)		1. Prioritize local (within the air district) and in-state offset credits over in-nation offset credits. Offset credits shall be third-party verified by a major registry recognized by CARB such as CAR (Climate Action Reserve). If sufficient local and in-state offset credits are not available, UCSF will purchase CARB conforming national offset credits registered with an approved registry. 2. Be reported publicly and tracked through the Climate Registry (TCR) as required by UC policy. TCR is a non-profit organization governed by U.S. states and Canadian provinces and territories. UCSF's TCR reports will be third-party verified and posted publicly. **Commitment to control Parnassus Heights Annual Emissions to not exceed existing baseline:** UCSF shall monitor Parnassus Heights campus-wide GHG operational emissions from all Scope 1, 2 and 3 sources (as defined in this EIR) annually, commencing in 2025 upon the completion and occupancy of the first project under the CPHP. The estimated annual emissions shall be compared to the year 2018 baseline of 125,426 MT CO_2e per year to determine whether the emissions have increased above the baseline level. For the identified amount of exceedance of the performance standard, UCSF shall purchase carbon offset credits sufficient to maintain carbon neutrality. These offset credits shall be purchased for the types of Scope 1 and Scope 3 emissions that are already reported to and verified by a third party verification body annually, as well as for Scope 3 emissions from patient and visitor vehicle trips, indirect emissions from water and wastewater demand, and solid waste emissions, all of which are included in the EIR analysis above as required by CEQA. Carbon offset credits used for this purpose shall originate from a voluntary carbon credit registry that TCR recognizes such as: CAR, ACR, or Verra (other registries are also applicable). Offset credits in this case shall be registered, transferred, and retired at such registries. The protocols of each registry, and UC own internal screens, shall be used to demonstrate that the carbon offset credits provided are real, permanent, additional, and have been independently verified as adhering to its applicable project protocols. For this purpose, local (within the air district) and in-state carbon offset credits shall be prioritized over in-nation offset credits. If sufficient local and in-state offset credits are not available, UCSF will purchase CARB conforming national offset credits registered with an approved registry. As and when the credits are retired, UCSF shall document in its annual report the unique identifier of those credits showing that they have been retired and accepted by TCR.	
Impact GHG-2: Implementation of the CPHP would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.8 Hazards and Hazardous Materials			
Impact HAZ-1: Construction and operation of campus development under the proposed CPHP could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	S	**CPHP Mitigation Measure HAZ-1:** An Excavation Management Plan shall be prepared by a qualified consultant to include the California Air Resource Board (CARB) Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations to minimize naturally occurring asbestos through the application of best management practices for fugitive dust from construction, grading and excavation operations. Unless site specific testing by a certified laboratory can demonstrate the absence of naturally occurring asbestos in materials to be excavated, construction specifications shall include implementation of this CARB ATCM.	LTS
Impact HAZ-2: Construction and operation of campus development under the proposed CPHP would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	LTS	None required.	NA
Impact HAZ-3: Construction and operation of the proposed CPHP would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	LTS	None required.	NA
Impact HAZ-4: Campus development under the proposed CPHP would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. However, previously unknown contamination could be encountered during construction and could have the potential to create a significant hazard to the public or the environment.	S	**CPHP Mitigation Measure HAZ-4:** Prior to development on the Parnassus Heights campus site under the CPHP, a Soil Management Plan shall be prepared by a qualified environmental consulting firm to reflect current regulatory requirements and risk management protocols that are in accordance with Regional Water Quality Control Board oversight. The Plan shall include measures to address protocols for identifying, handling, and characterizing suspect contaminated soils. Notification and sampling requirements for adequate characterization shall be in accordance with the overseeing agency (RWQCB or SFDEH) requirements and any required removal or remediation work shall be completed to the overseeing agency's standards prior to occupancy of the new structure.	LTS
Impact C-HAZ-1: Construction and operation of campus development under the proposed CPHP, in conjunction with other cumulative development within the City of San Francisco, would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or from risk of upset and accident conditions.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.9 Hydrology and Water Quality			
Impact HYD-1: Construction and operation of campus development under the CPHP would not have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.	LTS	None required.	NA
Impact HYD-2: Construction and operation of the campus development under the CPHP would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off- site; substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.	LTS	None required.	NA
Impact C-HYD-1: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development within the City of San Francisco, would not cumulatively violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	LTS	None required.	NA
Impact C-HYD-2: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development in the City of San Francisco's CSS, would not have the potential to cumulatively alter the drainage pattern of the site or area, through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.10 Land Use and Planning			
Impact LU-1: Implementation of the CPHP would not cause a significant environmental impact due to a conflict with land use plans, policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	None required.	NA
Impact LU-2: Development under the proposed CPHP would not conflict with local land use regulations such that a significant incompatibility with adjacent land uses is created.	LTS	None required.	NA
Impact C-LU-1: The proposed CPHP, in combination with past, present, and reasonably foreseeable future projects, would not result in a conflict with land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect or a conflict with local land use regulations such that a significant incompatibility with adjacent land uses is created.	LTS	None required.	NA
EIR Section 4.11 Noise and Vibration			
Impact NOI-1: Construction activities under the CPHP would generate a substantial temporary increase in ambient noise levels in the vicinity of the construction project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	S	**CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures.** UCSF contractors shall employ site-specific noise attenuation measures during construction of projects under the CPHP to reduce the generation of construction noise. These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by UCSF to ensure that construction noise is consistent with the standards set forth in the City's Noise Ordinance. Measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies: • Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds. • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used where feasible. • Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.	SU

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

<table>
<tr><th>Environmental Impact</th><th>Level of Significance Before Mitigation</th><th>Mitigation Measures</th><th>Level of Significance after Mitigation</th></tr>
<tr><td colspan="4">EIR Section 4.11 Noise and Vibration (cont.)</td></tr>
<tr><td>Impact NOI-1 (cont.)</td><td></td><td>
Shield staging areas where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities. Shielding may consist of plywood fencing with no gaps or acoustical paneling erected in K-rails.
<p>CPHP Mitigation Measure NOI-1b: Construction Hours. Construction hours shall be restricted to the hours listed in the table below. In rare circumstances, work may need to occur outside of these work hour limits. In such cases, UCSF Community and Government Relations will receive advance notice from the project manager, at least one week in advance as feasible, and will engage the community to identify measures to minimize potential impacts. These measures may include, but not be limited to, restricting work to smaller time windows, condensing the overall duration of nighttime work to the degree feasible, and erecting temporary barriers to shield the short-term nighttime activity.</p>
<table>
<tr><th colspan="5">Construction Hours</th></tr>
<tr><th></th><th colspan="2">“Not Noisy” Work[1]</th><th colspan="2">Noisy Work</th></tr>
<tr><th></th><th>Regular hours</th><th>Extended hours[2]</th><th>Regular hours</th><th>Extended hours[1]</th></tr>
<tr><td>Monday - Friday</td><td>7:00 a.m. to 5:00 p.m.</td><td>5:00 p.m. to 8:00 p.m.</td><td>8:00 a.m. to 5:00 p.m.</td><td></td></tr>
<tr><td>Saturday</td><td></td><td>8:00 a.m. to 5:00 p.m.</td><td></td><td>9:00 a.m. to 4:00 p.m.</td></tr>
<tr><td>Sunday</td><td></td><td>8:00 a.m. to 5:00 p.m.</td><td></td><td></td></tr>
</table>
<p>[1] “Not Noisy” work = 80 decibels or less at 100 feet; “Noisy” work = more than 80 decibels at 100 feet.
[2] Extended hours to be considered by UCSF Community and Government Relations with advance notice from the project manager.</p>
<p>CPHP Mitigation Measure NOI-1c: Pile-Installation Noise-Reducing Techniques. Noise-reducing pile-installation techniques shall be employed during project construction. These techniques shall include:</p>

Installing cast-in-place concrete piles. Noise from auger drilling is 17 dBA less than an impact pile driver.
Vibrating piles into place, and installing shrouds around the pile-driving hammer where feasible.
Implement “quiet” pile-installation technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile installation duration).

</td><td></td></tr>
</table>

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.11 Noise and Vibration (cont.)			
Impact NOI-1 (cont.)		Implement CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures–Construction Traffic Control Plan.	SU
Impact NOI-2: Implementation of the CPHP would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	S	**CPHP Mitigation Measure NOI-2: Operational Noise Control.** For all development projects under the CPHP, mechanical equipment shall be selected and designed to meet the City's Police Code requirements of 8 dBA over existing ambient noise levels without the equipment operating as well as an interior noise standard at any sleeping or living room in any dwelling unit located on residential property of 45 dBA between 10:00 p.m. and 7:00 a.m., and 50 dBA between 7:00 a.m. and 10:00 p.m. A qualified acoustical consultant shall be retained to review mechanical noise as these systems are selected to determine specific noise reduction measures necessary to reduce noise to comply with the City's Police Code. Noise reduction measures could include, but are not limited to, selection of equipment that emits low noise levels; installation of noise barriers such as enclosures and parapet walls to block the line of sight between the noise source and the nearest receptors; and siting the mechanical equipment, including intake and exhaust portals for fixed mechanical equipment, as far as possible from the nearby existing sensitive receptors (i.e., west side of building).	LTS
Impact NOI-3: Construction activities under the CPHP could result in generation of excessive groundborne vibration or groundborne noise levels.	S	**CPHP Mitigation Measure NOI-3a: Limited Use of Vibratory Rollers.** UCSF shall require that contractors use (non- vibratory) excavator mounted compaction wheels mounted on an excavator or back-hoe and/or small, smooth drum rollers for final compaction of any asphalt base and asphalt concrete within 25 feet of a historic or older structure. If needed to meet compaction requirements, smaller, non-seated vibratory rollers shall be used to minimize vibration levels during repaving activities where needed to meet a vibration standard of 0.25 PPV at adjacent historic or older structures. **CPHP Mitigation Measure NOI-3b: Assessment and Relocation/Retrofitting of Vibration-Sensitive Equipment. UCSF** shall evaluate the presence of vibration-sensitive equipment within 150 feet of construction and demolition areas. Any sensitive equipment shall be evaluated for the existing extent of vibration isolation and relocated or further embellish isolation, as warranted.	LTS
Impact NOI-4: Implementation of the CPHP would not exceed an LRDP EIR operational standard of significance by contributing to an increase in average daily noise levels (L_{dn}) of 3 dB(A) or more at property lines, where ambient noise levels already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.11 Noise and Vibration (cont.)			
Impact C-NOI-1: Implementation of the CPHP, combined with cumulative construction noise in the project area, would generate a substantial temporary increase in ambient noise levels from construction activity in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	S	Implement CPHP Mitigation Measures NOI-1a, NOI-1b, and CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures.	SU
Impact C-NOI-2: Implementation of the CPHP, combined with cumulative development in the project area, would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	S	Implement CPHP Mitigation Measure NOI-2.	LTS
Impact C-NOI-3: Implementation of the CPHP, combined with cumulative construction in the project area, would result in generation of excessive groundborne vibration or groundborne noise levels.	S	Implement CPHP Mitigation Measure NOI-3a.	LTS
Impact C-NOI-4: Implementation of the CPHP combined with cumulative development in the project area could exceed an LRDP EIR operational standard of significance by contributing to an increase in average daily noise levels (L_{dn}) of 3 dB(A) or more at property lines, if ambient noise levels in areas adjacent to proposed development already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use.	LTS	None required.	NA
EIR Section 4.12 Population and Housing			
Impact POP-1: Implementation of the CPHP would induce population growth in the San Francisco Bay area, which could create demand for housing outside the market area.	LTS	None required.	NA
Impact POP-2: Implementation of the CPHP would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.12 Population and Housing (cont.)			
Impact C-POP-1: The CPHP, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to significant cumulative population and housing impacts.	LTS	None required.	NA
EIR Section 4.13 Public Services			
Impact PUB-1: Implementation of the CPHP would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.	LTS	None required.	NA
Impact PUB-2: Implementation of the CPHP would not result in substantial adverse physical impacts associated with the provision of new or physically altered public school facilities, need for new or physically altered public school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.	LTS	None required.	NA
Impact C-PUB-1: The CPHP, in combination with past, present, and reasonably foreseeable future projects, would not result in substantial adverse physical impacts associated with the provision of new or physically altered public facilities, need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.	LTS	None required.	NA
EIR Section 4.14 Recreation			
Impact REC-1: Implementation of the CPHP would not increase the use of existing neighborhood and regional parks or other existing on- and off-campus recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.14 Recreation (cont.)			
Impact REC-2: The CPHP includes new recreational facilities, the construction of which would not have an adverse impact on the environment with mitigation.	LTS	None required.	NA
Impact C-REC-1: The CPHP, in combination with past, present, and reasonably foreseeable future projects, would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	None required.	NA
EIR Section 4.15 Transportation			
Impact TRANS-1: Implementation of the CPHP would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	LTS	None required.	NA
Impact TRANS-2: Implementation of the CPHP would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).	LTS	None required.	NA
Impact TRANS-3: Implementation of the CPHP would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LTS	None required.	NA
Impact TRANS-4: Implementation of the CPHP would not result in inadequate emergency access.	LTS	None required.	NA
Impact TRANS-5: Construction activities under the CPHP could temporarily impact travel conditions along sidewalks and roadways serving the campus site.	S	**CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures** ***Construction Traffic Control Plan*** – In order to reduce potential conflicts between construction activities and pedestrians, transit and autos during construction activities at the Parnassus Heights campus site, UCSF shall require construction contractor(s) to prepare a traffic control plan for major phases of project construction (e.g., demolition, construction, or renovation of individual buildings). UCSF and their construction contractor(s) will meet with relevant City agencies to coordinate feasible measures to reduce traffic congestion, including temporary transit stop relocations (e.g., Parnassus Avenue) and other measures to reduce potential traffic and transit disruption and pedestrian circulation effects during major phases of construction of the CPHP projects. For any work within the public right-of-way, the contractor would also be required to comply with the City of San Francisco's *Regulations for Working in San Francisco Streets*, which establish rules and permit requirements so that construction activities can be done safely and with the least possible interference with pedestrians, bicyclists, transit, and vehicular traffic.	LTS

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.15 Transportation (cont.)			
Impact TRANS-5 (cont.)		***Reduce Drive Alone Mode Share for Construction Workers*** – In order to minimize parking demand and vehicle trips associated with construction workers, UCSF shall require the construction contractor to include in the Construction Traffic Control Plan methods to encourage walking, bicycling, carpooling, and transit access to the campus site by construction workers. ***Project Construction Updates for Adjacent Residents and Businesses*** – In order to minimize construction impacts on access for nearby residences, institutions, and businesses, UCSF shall provide nearby residences and businesses with regularly-updated information regarding project construction, including construction activities, peak construction vehicle activities (e.g., concrete pours, excavation),and travel lane closures via a newsletter, website, and/or quarterly construction update meetings with neighbors.	
Impact C-TRANS-1: The CPHP, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to significant transportation impacts.	LTS	None required.	NA
EIR Section 4.16 Utilities and Service Systems			
Impact UTIL-1: Implementation of the proposed CPHP would require or result in the construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	LTS	None required.	NA
Impact UTIL-2: Sufficient water supply would be available from existing entitlements and resources to serve development under the proposed CPHP under normal, dry and multi-dry years if the Bay Delta Plan Amendment is implemented. If the Bay Delta Plan Amendment is implemented, the SFPUC may address the shortfalls through rationing and/or develop new or expanded water supply facilities to address shortfalls in single and multiple dry years. The CPHP would not make a considerable contribution to impacts from increased rationing or from the development of new supply sources.	LTS	None required.	NA

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TABLE 2-3 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.16 Utilities and Service Systems (cont.)			
Impact UTIL-3: The wastewater treatment provider would have adequate wastewater treatment capacity to serve campus development under the proposed CPHP.	LTS	None required.	NA
Impact UTIL-4: Construction of campus development under the proposed CPHP would not generate solid waste in excess of State or local standards or the capacity of local infrastructure and would comply with federal, state and local statutes and regulations related to solid waste.	LTS	None required.	NA
Impact UTIL-5: Operation of campus development under the proposed CPHP would not generate solid waste in excess of State or local standards or the capacity of local infrastructure and would comply with federal, State and local statutes and regulations related to solid waste.	LTS	None required.	NA
Impact-C-UTIL-1: Development under the proposed CPHP, in combination with past, present, and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site, would not substantially contribute to cumulative impacts related to utilities and services systems.	LTS	None required.	NA

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TABLE 2-4
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

				Level of Significance after Mitigation			
Significant Environmental Impact	**Initial Phase Project[a]/ Improvement**	**Level of Significance Before Mitigation**	**Applicable Mitigation Measures**	**Irving Street Arrival**	**RAB**	**Initial Aldea Housing Densification**	**Initial Phase Improvements**
EIR Section 4.1 Aesthetics, Wind, and Shadow							
Impact AES-1: Development of the proposed project would not have a substantial adverse effect on a scenic vista.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact AES-2: Development of the proposed project would occur in an urbanized area and would not conflict with applicable zoning and other regulations governing scenic quality.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact AES-3: Implementation of the proposed project would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	All Projects	S	**CPHP Mitigation Measure AES-3:** Minimize light and glare resulting from new buildings.	LTS	LTS	LTS	LTS
Impact AES-4: Implementation of the proposed project would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.	Irving Street Arrival, RAB, Initial Aldea Housing Densification	S	**CPHP Mitigation Measure AES-4:** Design new buildings to minimize wind impacts at pedestrian level.	SU	SU	SU	
	Initial Phase Improvements	LTS	None required.				LTS
Impact AES-5: Implementation of the proposed project would not create new shadow in a manner that would substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	All Projects	LTS	None required.	NA	NA	NA	NA
EIR Section 4.2 Air Quality							
Impact AIR-1: Construction activities would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	All Projects	S	**CPHP Mitigation Measure AIR-1a:** Clean Construction Equipment for CPHP Projects. **CPHP Mitigation Measure AIR-1b:** Best Management Practices for Controlling Particulate Emissions during Construction.	LTS	LTS	LTS	LTS
Impact AIR-2: Operation of campus facilities developed under the proposed project would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	All Projects	LTS	None required.	NA	NA	NA	NA

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Table 2-4 (continued)
Summary of Irving Street Arrival, RAB, and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.2 Air Quality (cont.)							
Impact AIR-3: Construction activities could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.	All Projects	S	Implement CPHP Mitigation Measure AIR-1a.	LTS	LTS	LTS	LTS
Impact AIR-4: Campus site operations under the proposed project could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact AIR-5: The proposed project could conflict with or obstruct implementation of the *2017 Clean Air Plan*.	All Projects	S	**CPHP Mitigation Measure AIR-5:** Implement "cool roof and pavement" design elements.	LTS	LTS	LTS	LTS
EIR Section 4.3 Biological Resources							
Impact BIO-1: Implementation of the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Irving Street Arrival	NI	None Required	NA			
	RAB	S	**CPHP Mitigation Measure BIO-1b.** Protection of Monarch Butterflies. **CPHP Mitigation Measure BIO-1c.** Protection of Nesting Birds. **CPHP Mitigation Measure BIO-1d.** Protection of Roosting Bats. **CPHP Mitigation Measure BIO-1e.** Worker Education.		LTS		

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TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project^{a}/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.3 Biological Resources (cont.)							
Impact BIO-1 (cont.)	Initial Aldea Housing Densification, Initial Phase Improvements	S	**CPHP Mitigation Measure BIO-1a.** Botanical Surveys. **CPHP Mitigation Measure BIO-1b.** Protection of Monarch Butterflies. **CPHP Mitigation Measure BIO-1c.** Protection of Nesting Birds. **CPHP Mitigation Measure BIO-1d.** Protection of Roosting Bats. **CPHP Mitigation Measure BIO-1e.** Worker Education.			LTS	LTS
Impact BIO-2: Implementation of the proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Irving Street Arrival	NI	None required.	NA			
	RAB, Initial Aldea Housing Densification, Initial Phase Improvements	S	**CPHP Mitigation Measure BIO-2a:** Prevention of Harm to Migrating Birds During Construction. **CPHP Mitigation Measure BIO-2b:** Bird-Safe Building Treatments.		LTS	LTS	LTS
Impact BIO-3: Implementation of proposed project would not conflict with any applicable local policies or ordinances protecting biological resources, including exceeding the LRDP EIR standard of significance by damaging or removing heritage or landmark trees or native oak trees of a diameter specified in a local ordinance.	All Projects	LTS	None required.	NA	NA	NA	NA
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources							
Impact CUL-1: Implementation of the proposed project would result in a substantial adverse change in the significance of known historical resources.	Irving Street Arrival	NI	None required.	NA			

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TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)							
Impact CUL-1 (cont.)	RAB	S	**CPHP Mitigation Measure CUL-1a:** Identify Character-Defining Features. **CPHP Mitigation Measure CUL-1b:** Document Historical Resources Prior to Demolition or Alteration. **CPHP Mitigation Measure CUL-1c:** Public Interpretation and Salvage Plan. **CPHP Mitigation Measure CUL-1d:** Digital-Imaging and Virtual Preservation of Zakheim Murals in UC Hall.		SU		
	Initial Aldea Housing Densification, Initial Phase Improvements	S	**CPHP Mitigation Measure CUL-1a:** Identify Character-Defining Features. **CPHP Mitigation Measure CUL-1b:** Document Historical Resources Prior to Demolition or Alteration. **CPHP Mitigation Measure CUL-1c:** Public Interpretation and Salvage Plan.			SU	SU
Impact CUL-3: Implementation of the proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	All Projects	S	**CPHP Mitigation Measure CUL-3:** Inadvertent Discovery of Archaeological Resources and Tribal Cultural Resources.	LTS	LTS	LTS	LTS
Impact CUL-4: Implementation of the proposed project could disturb human remains, including those interred outside of dedicated cemeteries.	All Projects	S	**CPHP Mitigation Measure CUL-4:** Inadvertent Discovery of Human Remains.	LTS	LTS	LTS	LTS
Impact CUL-5: Implementation of the proposed project P could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.	All Projects	S	Implement CPHP Mitigation Measure CUL-3.	LTS	LTS	LTS	LTS

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TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.5 Energy							
Impact ENE-1: Implementation of the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact ENE-2: Implementation of the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	All Projects	LTS	None required.	NA	NA	NA	NA
EIR Section 4.6 Geology and Soils							
Impact GEO-1: New development under the proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact GEO-2: New development under the proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic related ground failure including liquefaction.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact GEO-3: New development under the proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides.	All Projects	S	**CPHP Mitigation Measure GEO-3:** UCSF shall implement the following geotechnical recommendations contained within the Rutherford & Chekene March 2019 report.	LTS	LTS	LTS	LTS
Impact GEO-4: Construction and operation of development associated with the proposed project would not have the potential to result in the substantial erosion or the loss of topsoil.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact GEO-5: Development and redevelopment associated with the proposed project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	All Projects	LTS	None required.	NA	NA	NA	NA

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TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.6 Geology and Soils (cont.)							
Impact GEO-6: Construction associated with the proposed project could have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	All Projects	S	**CPHP Mitigation Measure GEO-6:** Pre-project training and the procedures to follow in the event of an inadvertent discovery of resources.	LTS	LTS	LTS	LTS
EIR Section 4.7 Greenhouse Gas Emissions							
Impact GHG-1: Implementation of the proposed project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	Irving Street Arrival, RAB, Initial Aldea Housing Densification	S	**CPHP Mitigation Measure GHG-1a:** Emission Reduction Measures to supplement those currently included in GHGRS update that would occur as part of the proposed amendment to the 2014 LRDP under the CPHP. **CPHP Mitigation Measure GHG-1b:** Implement CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures, CPHP Mitigation Measure AIR-2b: TDM Program Enhancements, CPHP Mitigation Measure AIR-4b: Design for Diesel Delivery Truck Emissions Minimization, and CPHP Mitigation Measure AIR-5: Implement “cool roof and pavement” design elements to further reduce emissions from individual projects and mobile sources. **CPHP Mitigation Measure GHG-1c:** Monitor emissions annually and acquire carbon offset credits in conformance with CARB guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP.	LTS	LTS	LTS	
	Initial Phase Improvements	LTS	None required.				NA

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TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.7 Greenhouse Gas Emissions (cont.)							
Impact GHG-2: Implementation of the proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	All Projects	LTS	None required.	NA	NA	NA	NA
EIR Section 4.8 Hazards and Hazardous Materials							
Impact HAZ-1: Construction and operation of campus development under the proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	All Projects	S	**CPHP Mitigation Measure HAZ-1:** Excavation Management Plan.	LTS	LTS	LTS	LTS
Impact HAZ-2: Construction and operation of campus development under the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact HAZ-3: Construction and operation of the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact HAZ-4: Campus development under the proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. However, previously unknown contamination could be encountered during construction and could have the potential to create a significant hazard to the public or the environment.	All Projects	S	**CPHP Mitigation Measure HAZ-4:** Soil Management Plan.	LTS	LTS	LTS	LTS
EIR Section 4.9 Hydrology and Water Quality							
Impact HYD-1: Construction and operation of campus development under the proposed project would not have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.	All Projects	LTS	None required.	NA	NA	NA	NA

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TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.9 Hydrology and Water Quality (cont.)							
Impact HYD-2: Construction and operation of the campus development under the proposed project would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off- site; substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.	All Projects	LTS	None required.	NA	NA	NA	NA
EIR Section 4.10 Land Use and Planning							
Impact LU-1: Implementation of the proposed project would not cause a significant environmental impact due to a conflict with land use plans, policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact LU-2: Development under the proposed project would not conflict with local land use regulations such that a significant incompatibility with adjacent land uses is created.	All Projects	LTS	None required.	NA	NA	NA	NA
EIR Section 4.11 Noise and Vibration							
Impact NOI-1: Construction activities under the proposed project would generate a substantial temporary increase in ambient noise levels in the vicinity of the construction project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Irving Street Arrival, Initial Phase Improvements	S	**CPHP Mitigation Measure NOI-1b:** Construction Hours	LTS			LTS
	RAB, Initial Aldea Housing Densification	S	**CPHP Mitigation Measure NOI-1a:** Construction Noise Control Measures. **CPHP Mitigation Measure NOI-1b:** Construction Hours. **CPHP Mitigation Measure NOI-1c**: Pile-Installation Noise-Reducing Techniques. Implement CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures–Construction Traffic Control Plan.		SU	SU	

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TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.11 Noise and Vibration (cont.)							
Impact NOI-2: Implementation of the proposed project would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Irving Street Arrival	NI	None required.	NA			
	RAB, Initial Aldea Housing Densification	S	**CPHP Mitigation Measure NOI-2:** Operational Noise Control.		LTS	LTS	
	Initial Phase Improvements	LTS	None required.				NA
Impact NOI-3: Construction activities under the proposed project could result in generation of excessive groundborne vibration or groundborne noise levels.	Irving Street Arrival, Initial Aldea Housing Densification, Initial Phase Improvements	LTS	None required.	NA		NA	NA
	RAB	S	**CPHP Mitigation Measure NOI-3a:** Limited Use of Vibratory Rollers. **CPHP Mitigation Measure NOI-3b:** Assessment and Relocation/ Retrofitting of Vibration-Sensitive Equipment.		LTS		
Impact NOI-4: Implementation of the proposed project would not exceed an LRDP EIR operational standard of significance by contributing to an increase in average daily noise levels (L_{dn}) of 3 dB(A) or more at property lines, where ambient noise levels already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use.	All Projects	LTS	None required.	LTS	LTS	LTS	LTS
EIR Section 4.12 Population and Housing							
Impact POP-1: Implementation of the proposed project would induce population growth in the San Francisco Bay area, which could create demand for housing outside the market area.	Irving Street Arrival, Initial Phase Improvements	NI	None required.	NA			NA
	RAB, Initial Aldea Housing Densification	LTS	None required.		NA	NA	

S = Significant Impact
SU = Significant and Unavoidable with Mitigation
LTS = Less than Significant impact
NI = No Impact
NA = Not applicable

TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.12 Population and Housing (cont.)							
Impact POP-2: Implementation of the proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere	Irving Street Arrival, RAB, and Initial Phase Improvements	NI	None required.	NA	NA		NA
	Initial Aldea Housing Densification	LTS	None required.			NA	
EIR Section 4.13 Public Services							
Impact PUB-1: Implementation of the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact PUB-2: Implementation of the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered public school facilities, need for new or physically altered public school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.	Irving Street Arrival, RAB, Initial Phase Improvements	NI	None required.	NA	NA		NA
	Initial Aldea Housing Densification	LTS	None required.			NA	
EIR Section 4.14 Recreation							
Impact REC-1: Implementation of the proposed project would not increase the use of existing neighborhood and regional parks or other existing on- and off-campus recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	Irving Street Arrival, Initial Phase Improvements	NI	None required.	NA			NA
	RAB, Initial Aldea Housing Densification	LTS	None required.		NA	NA	

S = Significant Impact	LTS = Less than Significant impact	NA = Not applicable
SU = Significant and Unavoidable with Mitigation	NI = No Impact	

TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	**RAB**	**Initial Aldea Housing Densification**	**Initial Phase Improvements**
EIR Section 4.14 Recreation (cont.)							
Impact REC-2: The proposed project includes new recreational facilities, the construction of which would not have an adverse impact on the environment with mitigation.	Irving Street Arrival, RAB, Initial Aldea Housing Densification	NI	None required.	NA	NA	NA	
	Initial Phase Improvements	LTS	None required.				NA
EIR Section 4.15 Transportation							
Impact TRANS-1: Implementation of the proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact TRANS-2: Implementation of the proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).	Irving Street Arrival, Initial Phase Improvements	NI	None required.	NA			NA
	RAB, Initial Aldea Housing Densification	LTS	None required.		NA	NA	
Impact TRANS-3: Implementation of the proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	All Projects	LTS	None required.	NA	NA	NA	NA
Impact TRANS-4: Implementation of the proposed project would not result in inadequate emergency access.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact TRANS-5: Construction activities under the proposed project could temporarily impact travel conditions along sidewalks and roadways serving the campus site.	All Projects	S	**CPHP Mitigation Measure TRANS-5:** Construction Coordination and Monitoring Measures.	LTS	LTS	LTS	LTS
EIR Section 4.16 Utilities and Service Systems							
Impact UTIL-1: Implementation of the proposed project would require or result in the construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	All Projects	LTS	None required.	NA	NA	NA	NA

S = Significant Impact
SU = Significant and Unavoidable with Mitigation
LTS = Less than Significant impact
NI = No Impact
NA = Not applicable

TABLE 2-4 (CONTINUED)
SUMMARY OF IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA DENSIFICATION PROJECTS, AND INITIAL PHASE IMPROVEMENTS IMPACTS AND MITIGATION MEASURES

Significant Environmental Impact	Initial Phase Project[a]/ Improvement	Level of Significance Before Mitigation	Applicable Mitigation Measures	Level of Significance after Mitigation			
				Irving Street Arrival	RAB	Initial Aldea Housing Densification	Initial Phase Improvements
EIR Section 4.16 Utilities and Service Systems (cont.)							
Impact UTIL-2: Sufficient water supply would be available from existing entitlements and resources to serve development under the proposed project under normal, dry and multi-dry years if the Bay Delta Plan Amendment is implemented. If the Bay Delta Plan Amendment is implemented, the SFPUC may address the shortfalls through rationing and/or develop new or expanded water supply facilities to address shortfalls in single and multiple dry years. The CPHP would not make a considerable contribution to impacts from increased rationing or from the development of new supply sources.	Irving Street Arrival	NI	None required.	NA			
	RAB, Initial Aldea Housing Densification, Initial Phase Improvements	LTS	None required.		NA	NA	NA
Impact UTIL-3: The wastewater treatment provider would have adequate wastewater treatment capacity to serve campus development under the proposed project.	Irving Street Arrival	NI	None required.	NA			
	RAB, Initial Aldea Housing Densification, Initial Phase Improvements	LTS	None required.		NA	NA	NA
Impact UTIL-4: Construction of campus development under the proposed project would not generate solid waste in excess of State or local standards or the capacity of local infrastructure and would comply with federal, state and local statutes and regulations related to solid waste.	All Projects	LTS	None required.	NA	NA	NA	NA
Impact UTIL-5: Operation of campus development under the proposed project would not generate solid waste in excess of State or local standards or the capacity of local infrastructure and would comply with federal, State and local statutes and regulations related to solid waste.	Irving Street Arrival	NI	None required.	NA			
	RAB, Initial Aldea Housing Densification, Initial Phase Improvements	LTS	None required.		NA	NA	NA

[a] Please note the proposed New Hospital is also an Initial Phase project, however, there is currently insufficient information about its design to assess its potential impacts with any specificity. As a result, potential impacts of the New Hospital are included in the programmatic CPHP impacts summarized in Table 2-3, and will be the subject of a subsequent EIR.

S = Significant Impact	LTS = Less than Significant impact	NA = Not applicable
SU = Significant and Unavoidable with Mitigation	NI = No Impact	

CHAPTER 3

Project Description

3.1 Introduction

Each campus of the University of California is required to periodically prepare a Long Range Development Plan (LRDP) that sets forth concepts, principles, and plans to guide future growth of that campus. In November 2014, the Regents of the University of California (Regents) adopted the 2014 LRDP for the San Francisco campus, which outlines projected development levels and patterns for UCSF at all of its main campus sites through the year 2035. The 2014 LRDP Final EIR (FEIR) was certified by the Regents in November 2014 and includes, among other things, analysis of the potential environmental impacts from then-envisioned development at the Parnassus Heights campus site.

The Parnassus Heights campus site (Parnassus Heights, or campus site) is the oldest and largest of the UCSF campus sites. This campus site comprises approximately 107 acres of land located in the Inner Sunset mixed-use neighborhood and adjacent to the Haight Ashbury and Cole Valley neighborhoods in San Francisco. UCSF's facilities are concentrated at the north end of the campus site, where Moffitt and Long Hospitals, five professional programs, clinics, research, housing, parking, and other support uses are located. The 61-acre Mount Sutro Open Space Reserve occupies the central and southern portion of the campus site. The Aldea Housing complex is located in the southeast portion of the campus site adjacent to the Reserve.

The facilities at Parnassus Heights are aging and the site as a whole lacks a cohesive identity. Over the last 20 years, UCSF has invested billions of dollars into acquiring, developing, and supporting its Mission Bay campus site, without commensurate investment in Parnassus Heights. UCSF's investment in Parnassus Heights has not kept pace with its aging facilities or changes in programmatic need, resulting in infrastructure, buildings, and interior spaces that require substantial renewal and investment.

Since the adoption of the 2014 LRDP and certification of the 2014 LRDP FEIR, UCSF undertook a planning process to re-envision and revitalize Parnassus Heights as a whole, to integrate UCSF's clinical, educational, and research missions in ways that promote collaboration and synergies in the UCSF Parnassus Heights campus community. The planning process resulted in the development of the Comprehensive Parnassus Heights Plan (CPHP, or Plan), which provides a long-term development framework for the revitalization of the Parnassus Heights physical environment, and is intended to ensure that a modernized Parnassus Heights enhances UCSF's status as an anchor institution in San Francisco, and a leading academic medical center in the region, state and nation.

The proposed CPHP is subject to review under the California Environmental Quality Act (CEQA). The University is serving as the Lead Agency under CEQA for the proposed CPHP. This EIR has been prepared in accordance with CEQA to analyze potential environmental impacts that could result from the approval and implementation of the CPHP. The CPHP EIR is a program-level EIR that programmatically analyzes the environmental impacts of the CPHP which is envisioned to be completed by horizon year 2050. The CPHP EIR also provides project-level analyses of specific near-term projects and activities proposed for the initial phase of CPHP implementation that are planned for completion by approximately 2030. This EIR analyzes the CPHP proposals based on the level of information available for each project at the time of preparation of this EIR.

Because the CPHP proposes to modify the Parnassus Heights development plans identified in the 2014 LRDP, an amendment of the 2014 LRDP is proposed. In total, the CPHP provides for development of approximately 2.90 million gross square feet (gsf) of new building space at the Parnassus Heights campus site. The net increase in building space at the campus site under the CPHP would be approximately 2.04 million gsf, when accounting for demolition that was approved under the 2014 LRDP but yet not implemented, and potential additional building demolition that would occur under the CPHP. Currently, there is approximately 3.92 million gsf of building space on the campus site. The total amount of campus building space upon full implementation of the CPHP would be approximately 5.97 million gsf (including instruction, research, clinical, and support space; housing; and structured parking), when accounting for existing campus site development, demolition, and proposed new development.

UCSF has also begun to plan the New Hospital at Parnassus Heights (NHPH or New Hospital) and is projecting the need for a larger hospital than was planned in the 2014 LRDP. The planning, design and construction of a new, world-class hospital at Parnassus Heights would ensure that UCSF can continue to provide premier care to patients in the San Francisco Bay Area and beyond in the 21st century. Broad parameters for the New Hospital project (location, size, mass, height, and projected population) are accounted for in the CPHP and are analyzed at a program level in this Draft EIR. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available.

3.2 Campus Site Location

Figure 3-1 presents an aerial of the Parnassus Heights campus site location and vicinity. The campus site is located in the Inner Sunset mixed-use neighborhood in San Francisco, bounded by Carl and Irving Streets to the north; Third Avenue and Fifth Avenue to the west; and Clarendon Avenue, Christopher Drive, and Crestmont Drive to the south. The campus site's east boundary abuts the Cole Valley neighborhood and the City's Interior Greenbelt Natural Area. As shown in Figure 3-1, Golden Gate Park, including Kezar Stadium, is located one block (approximately 400 feet) north of the campus site boundary, and Sutro Tower is located approximately 700 feet southeast of the campus site.

SOURCE: Google Earth, 2019; ESA, 2019

Figure 3-1
Parnassus Heights Campus Site Location and Vicinity

3.3 Existing Campus Site Characteristics

The irregularly-shaped Parnassus Heights campus site comprises 107 acres (see **Figure 3-2**). The topography on the campus site is varied, with slopes generally rising from north to south through the majority of the site. The lowest elevation of the campus site is at the north campus site boundary on Irving Street [approximately 300 feet above sea level (asl)] and the highest elevation is at over 900 feet asl on Mount Sutro in the south portion of the campus site, declining to approximately 700 feet asl along the campus site south boundary at Clarendon Avenue.

The majority of the campus site's development is concentrated in the northern portion of the campus site (see **Figure 3-3**). The physical core of the campus site is located along Parnassus Avenue, which extends east-west through this densely developed area, bisecting this portion of the campus site. Clinical space, including the Moffitt and Long Hospitals, the Langley Porter Psychiatric Institute (LPPI), and Medical Building 1 (formerly Ambulatory Care Center, or ACC) dominate the east area of the campus core. Most of the research facilities, the five professional programs (dentistry, medicine, nursing, pharmacy, and physical therapy), and additional clinical space are located in the central and western portions of the campus core, south of Parnassus Avenue. Principal buildings in this area of the campus core include the Clinical Sciences and Medical Sciences Buildings, the Health Sciences Instruction and Research (HSIR) Towers East and West, School of Nursing, Dental Clinics, Dolby Regeneration Medicine Building, Koret Vision Center, and UC Hall. Classroom and other instructional space are also scattered throughout the campus core.

Support functions are primarily located near the center of the campus core, north of Parnassus Avenue, including within Kalmanovitz Library and Millberry Union, which provides conference, food service, recreation and fitness, and office space. Campus housing occupies the west edges of the north portion of the campus site along Third and Fifth Avenues, and on Irving Street. This housing is occupied by students and postdoctoral scholars; some faculty housing exists on Fifth Avenue as well. Logistical support, including loading facilities; and various service- and utilities-related uses, including the Central Utility Plant (CUP) and Parnassus Services building, are located south of Moffitt and Long Hospitals.

The 61-acre Mount Sutro Open Space Reserve (Reserve) occupies the central and southern portions of the campus site. The Reserve occupies the ridgeline and hillslopes adjoining the drainage divide that forms the boundary between the San Francisco Bay and Pacific Ocean watersheds in the City. The Reserve is heavily vegetated and supports more than 120 plant species. The Reserve is designated by the Regents as permanent open space, and is available for public use. As shown in Figure 3-3, campus site buildings located adjacent to the Reserve include several small office and support buildings, including Environmental Health and Safety (EHS) and its Annex, and the Surge and Woods buildings. These facilities are accessed via Medical Center Way, a narrow, two-lane campus road that winds south from Parnassus Avenue through the Reserve.

SFO/D190291.00 - UCSF CPHP EIR2. Graphics/Illustrator

SOURCE: Google Earth, 2019; ESA, 2019

Figure 3-2
Parnassus Heights Campus Site

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Google Earth, 2019; ESA, 2019

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 3-3
North Portion of Parnassus Heights Campus Site

ESA

As shown in **Figure 3-4**, the Aldea Housing complex is located on the south slope of Mount Sutro in the southeast portion of the campus site, adjacent to the Reserve. The complex comprises 12 apartment buildings containing 172 student housing units, and a community center (Aldea Center on Mount Sutro). The Aldea Housing is largely used by UCSF students, but also includes postdoctoral scholars, clinical residents, and faculty. Most of these units are for people with families. The Chancellor's residence (University House) is located adjacent to the complex. An internal network of streets serves the Aldea Housing complex, and Medical Center Way connects this area to the campus core.

The primary parking facilities at the campus site are within structured parking at the Millberry Union and Medical Building 1, in surface parking lots north of Kirkham Street and north of the Surge building, and as campus on-street parking within the Aldea Housing complex.

As of 2019, there are 71 buildings and approximately 3.92 million gsf of development on the campus site, including instruction, research, clinical, and support space, housing, and structured parking.

Existing construction activities underway at Parnassus Heights separate from the 2014 LRDP include: on-going tree removal, tree planting, native plant restoration and management of tree risk and defensible space within the Reserve as part of the Mount Sutro Open Space Reserve Vegetation Management Plan (20-year phased plan); and on-going minor renovation of miscellaneous existing space within the campus site. These improvements and activities are separate from those contemplated under the 2014 LRDP, and would not alter the amount of building space at the campus site.

The current average daily population at Parnassus Heights is estimated at approximately 17,400 persons, including faculty and staff, students, patients, and visitors. Approximately 80 percent of UCSF's 4,900 students (including post-doctoral scholars) receive instruction at the campus site. There are currently nearly 7,400 UCSF faculty and staff employed at the campus site. Over 644,000 outpatient visits per year are currently conducted at clinics at the Parnassus Heights campus site. About 580 residents currently reside in UCSF housing at the Parnassus Heights campus site.

3.4 Relationship of CPHP to 2014 LRDP

On November 20, 2014, the Regents adopted the UCSF 2014 LRDP. The 2014 LRDP serves as a comprehensive physical land use plan and policy document to guide the physical development of the San Francisco campus at its various campus sites, accommodating future increases in enrollment and clinical, academic, and research activities, and increased housing demand at UCSF. The existing 2014 LRDP accommodates development anticipated to occur through horizon year 2035. The 2014 LRDP contains objectives to guide decisions for future facilities to meet demands and projects the quantities and uses of new building space needed during this time frame.

The 2014 LRDP included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group. These *Principles* formalize UCSF's commitment to communicate with neighbors regarding its potential future development, in order to identify

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Google Earth, 2019; ESA, 2019

Figure 3-4
Southeast Portion of Parnassus Heights Campus Site
(Aldea Housing Complex)

potential community concerns that may arise from UCSF's physical development prior to the time that individual projects are brought forward for approval. In addition, the 2014 LRDP includes a Greenhouse Gas Reduction Strategy and a commitment to continue to enhance its Transportation Demand Management Program.

Because the CPHP proposes to modify the Parnassus Heights development plan identified in the 2014 LRDP, an amendment of the 2014 LRDP is proposed. The proposed LRDP amendment would revise those portions of the 2014 LRDP that pertain to Parnassus Heights to incorporate concepts and proposals identified in the CPHP. Proposed changes would include revisions to functional zones; revisions to the space program, update to the projected population; revisions to existing planning agreements, including revisions to the Regents' Resolution and an update to the Greenhouse Gas Reduction Strategy.

It should be noted that LRDPs typically cover a 10 to 15 year planning period. As indicated above, the UCSF 2014 LRDP addressed development at the entire UCSF campus over an approximate 20-year period, or an approximate horizon year of 2035. However, determining the length of the planning period may depend on a number of factors, including academic and other physical planning efforts, anticipated development cycles, and alignment with local, regional, or state plans and regulations.

If the Regents approve the proposed 2014 LRDP amendment to incorporate the CPHP, the CPHP would become the primary planning document for Parnassus Heights and would guide the development of the Parnassus Heights campus site through the next 30 years, or an approximate horizon year of 2050. Nevertheless, development at all other UCSF campus sites addressed by the UCSF 2014 LRDP would continue to have an approximate horizon year of 2035.

3.5 Project Need

As the second largest employer in the City, UCSF is a substantial contributor to the San Francisco and Bay Area economies, as well as a major contributor to the culture of innovation, attracting world-class talent to live, work, and study. At the same time, due in part to surging economic growth, San Francisco is facing a number of challenges, including growing socioeconomic and health disparities, increasing cost of living, reduced housing affordability, and a transportation infrastructure that is strained.

As indicated above, over the last 20 years, UCSF has invested substantial financial resources into acquiring, developing, and supporting its Mission Bay campus site, without commensurate investment in the Parnassus Heights campus site. UCSF's investment in Parnassus Heights has not kept pace with its aging facilities or changes in programmatic need, resulting in infrastructure, buildings, and interior spaces that require significant renewal and investment.

Although the 2014 LRDP planned for a modest growth in clinical and research space at the Parnassus Heights campus site, UCSF has since then determined that in order to ensure continued excellence of the University, stay competitive and remain a leading health science institution both nationally and internationally, and build on the outstanding instructional, research, and clinical programs that are present at Parnassus Heights, improvements must be made at this campus site to address its aging and inadequate facilities and provide a teaching hospital that can adequately support the education and research missions while providing expanded and improved clinical services to the local community. The CPHP development program is needed for the reasons presented below (a more detailed analysis is presented in **Appendix SNA**).

1. **Aging and Outdated Facilities.** There is a clear discrepancy between the practice of cutting-edge health sciences and the physical condition of the campus site. Buildings at the Parnassus Heights campus site have an average age of more than 50 years, and many have limited long-term viability. Future advances in learning, discovery, and healing are dependent on close collaboration and creative partnerships that the current campus design does not facilitate. With advances in technology, spatial requirements for research and clinical uses have grown and changed. The increase in equipment sizes, associated code requirements, and new trends for improved work environments put pressure on existing spaces, which fall short of world-class, modern space standards. Building codes for accessibility, fire and life safety, seismic performance, and other requirements have become more stringent. Some older buildings on the Parnassus Heights campus site have not kept up with these advances and are currently being evaluated to assess the dependencies in bringing them up to these standards. Older buildings have low floor-to-floor heights and do not meet the current standards for contemporary specialized research and clinical care. Support infrastructure is at risk of failure, vulnerable to increased environmental stressors, and very costly to maintain. The current clinical facilities are outdated and require expensive maintenance and repair. In addition, the Moffitt Hospital (built in 1955) can remain an acute care hospital only until January 1, 2030, due to State seismic regulations, unless seismically retrofitted.
2. **Adequate and Appropriately Designed New Space for Research Programs.** Through an assessment of research programs and infrastructure at Parnassus Heights, the Research Space Working Group (RSWG) found that the Parnassus Heights campus site is home to numerous highly regarded biomedical research programs that are outstanding across the spectrum. In contrast, the current research space and infrastructure at Parnassus Heights is, in many cases, sub-standard and inadequate. Close to 80 percent of existing research space is in buildings well over 50 years old and much of this space does not meet standards for modern research space and is not compliant with current building codes. Modern research space requires larger open spaces that provide flexibility for new programs, space to connect to other research functions, larger floor-to-floor height to accommodate modern infrastructure, and the ability to foster programmatic research interactions in common or shared space. Because there is a shortage of core resource space, such as co-located shared core labs that facilitate collaboration, and digital hub space for clinical informatics research, many research programs are fragmented, causing difficulty in collaboration, and there is no room to grow or expand existing research programs. Of the total number of Principal Investigators (PIs) at Parnassus Heights, about 45 percent of PIs conduct Parnassus Heights-based sponsored projects involving patient facing research. Currently, there is a lack of designated clinical research space in patient care areas of the hospitals and clinics and properly designed clinical research space for patient cohorts, clinical trials and mechanism-oriented clinical research. This creates suboptimal interactions and collaborations with the clinical programs. The RSWG also noted that the Parnassus Heights campus site is experiencing difficulty recruiting and retaining young faculty due to insufficient research space both in terms of quality and quantity, fragmented research programs, and a shortage of Core resources. The RSWG recommends expansion and transformation of the Parnassus Heights research space to address existing challenges and deficiencies in the current space infrastructure and to allow future expansion. The new research space included in the CPHP would address the current unmet need for research space and support the growth of research at Parnassus Heights.

3. **Adequate and Appropriately Designed New Space for the Education Programs.** All five professional degree programs are located at the Parnassus Heights campus site and classroom instruction for them will continue to occur primarily at this campus site. The Education Space Working Group (ESWG) composed of a range of faculty and staff from across the academic enterprise was charged with addressing the space needs of these educational programs. The ESWG engaged with education mission stakeholders, including students; conducted an inventory of current shared and departmental instructional spaces; and explored the role of clinical and research space on the Parnassus Heights campus site as it intersects with the education mission. The ESWG assumed that teaching and learning would continue to evolve and change due to the influence of new technologies and that there would not be an overall reduction in instructional space at Parnassus Heights. Rather, different types of space would be needed to meet changing educational needs. The ESWG also envisioned an innovative central education core to support active learning and inter-professional pedagogies, including the reconfiguration of existing education space. This education core would integrate with clinical simulation space, updated modern classrooms, and lab space. The ESWG determined that there would be a need to increase instructional space by about 27 percent from existing conditions, and that would be possible to achieve this through use of existing repurposed space.

4. **Adequate and Appropriately Designed New Space for Clinical Programs.** UCSF Health provides both outpatient and inpatient clinical services at the Parnassus Heights campus site. The Helen Diller Medical Center (Medical Center) at Parnassus Heights, which comprises Moffitt and Long Hospitals, provides highly specialized tertiary and quaternary[1] adult care. According to UCSF Health, the Medical Center's inpatient census is at a record high and continues to experience unprecedented growth. The Medical Center is already at capacity and has to turn away transfer patients who need complex care. In 2017, UCSF received over 5,500 requested medically necessary transfers, of which about 2,200 (or approximately 40 percent) were turned away due to lack of capacity. In 2018, over 2,300 patients were turned away (about 40 percent), and in 2019, over 3,000 patients were turned away (about 46 percent). It is anticipated that there will be a 14 percent increase in medically necessary transfers by 2030. Further, the complex tertiary and quaternary cases treated by UCSF specialists at Parnassus Heights are forecast to increase in number over the coming years and decades, due to the Bay Area's projected population growth, which includes an increase in the Medicare population due to an aging regional population (national trends indicated there will be a 31 percent increase in the Medicare population over the next 10 years). Complex cardiac surgery and neurosurgery cases are projected to increase by 30 percent in the next 10 years. These complex cases will require longer hospital stays and more hospital beds. In addition, there is an increase in medical complexity of patients coming to the hospital as less complex cases are transitioned to outpatient clinics, and higher complexity mean longer length of stay for each admission and greater need for beds. Learning from the current COVID-19 pandemic, it is extremely critical for clinical facilities to be flexible and have the ability to increase inpatient capacity to accommodate additional clinical needs during these times, rather than reducing or canceling non-essential surgeries in order to reduce patient census. Based on observed shortages in the availability of beds, especially ICU and acute care beds; an analysis of demographic trends that indicate that the Medical Center will need to serve not only a larger population but also a population that includes more elderly patients; an analysis of the demand/need for private rooms (vs shared rooms/wards); and an analysis of

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[1] Tertiary health care is the third tier of health care which involves highly specialized medical care provided by medical specialists in state-of-the-art facilities, such as teaching hospitals. It usually is provided over an extended period of time and involves advanced and complex procedures and treatments. Quaternary health care is considered an extension of tertiary care and is even more specialized. Examples would be experimental medicine and procedures, and very rare, specialized surgeries.

trends in health care which show an increased need for tertiary and quaternary health care, UCSF Health determined that a larger hospital is needed that not only replaces the 150 beds that are currently in Moffitt Hospital and the beds that would be reduced in Long Hospital once that hospital is upgraded to current standards, but also provides an additional 200 beds, along with other necessary facilities that include additional operating rooms, additional ER bays and spaces, additional interventional labs, and ambulance bays.

With regard to outpatient facilities, UCSF Health currently projects a modest one percent growth per year at the Parnassus Heights campus site between 2030 and 2050. The CPHP does not plan for additional net new outpatient space. It is assumed that any outpatient space needs would be met in existing space that is converted or renovated from other existing uses.

5. **Co-location of Instructional, Research, and Clinical Spaces.** UCSF is a graduate-level university that is devoted exclusively to health sciences and is host to world-renowned science, from basic and quantitative biomedical sciences to translational and clinical research. Today, UCSF's public mission goes beyond San Francisco and delivers a substantial impact on a national and global level by innovating health care approaches for the world's most vulnerable populations, training the next generation of doctors, nurses, dentists, pharmacists, and scientists; supporting elementary and high school education; and translating scientific discoveries into better health for everyone. These three missions of clinical care, education, and research are inter-dependent and require balanced support to ensure continued excellence. With a health science focus, much of the research at UCSF benefits from adjacency to the clinical environment just as access to the most advanced research is important to support the clinicians. Similarly, the research and clinical environments provide critical training for students and learners at UCSF. The clinical, educational and research programs are inextricably linked.

   UCSF's research activities benefit from the frequent personal connections that foster collaborations in discovery. The current Medical Center, comprising Moffitt and Long hospitals, has convenient connections on every floor to the research and learning facilities in the Medical Sciences Building and is located near the Health Sciences East and West research towers. Parnassus Heights research teams are made up of clinicians, learners, faculty, and staff who leverage the full assets of the campus and the proximity to one another to create a variety of working partnerships. In addition, research and clinical trials, including National Institutes of Health-funded studies and industry-sponsored studies, benefit from proximity to the hospital, while patients benefit from innovative clinical care that results from these trials.

6. **Affordable On-Campus Housing.** Affordable, accessible housing options are critical to the successful recruitment of faculty and students, as well as long-term employee retention, especially in light of the critical housing shortage in San Francisco. Currently, across all UCSF sites, there are 1,251 units of faculty and student/trainee housing. Based on a Housing Study conducted in 2015, the estimated demand in 2025 for student/trainee housing would be about 2,030 units. Estimated demand for faculty housing would be 345 units, predominantly for incoming junior faculty. The estimated demand far exceeds what is currently available across UCSF campus sites. The CPHP includes the development of new housing, both to address the needs of the Parnassus Heights community and to offset the pressures on San Francisco's existing housing inventory.

7. **Expanded Support Space.** In addition to Instructional, Clinical, and Research spaces, campus support space also need to grow proportionally to provide the essential services and continued support to the research, education, and clinical programs at the Parnassus Heights campus site.

8. **Improved Community Space.** The current campus design contributes to a sense of isolation from the neighborhood and lacks an iconic "front door" experience and a sense of welcome. Entries are confusing and unattractive. Most of the existing buildings are difficult to navigate. There are insufficient comfortable, landscaped areas and public spaces that could provide quality of life improvements, workplace satisfaction, or therapeutic benefits to all user groups. The CPHP development program aims to address this by demolishing some buildings and reconfiguring other buildings and spaces, and creating clear entries, easier pathfinding, better pedestrian circulation, and enhanced community open spaces.

3.6 Project Objectives

3.6.1 Parnassus Heights [from the 2014 LRDP and FEIR]

The 2014 LRDP FEIR identified objectives specific to the Parnassus Heights campus site. Those objectives which are listed below remain valid, with the exception of objective E. related to the space ceiling, to be revised as shown as part of the proposed amendment to the LRDP.

A. Continue to promote excellence and leadership in health science education, maintaining the Parnassus Heights campus site as the central location for classroom instruction.

B. Ensure that adequate space is provided to foster collaboration and to facilitate the inter-dependence and connectivity for operational efficiency and effectiveness of instruction, clinical, research and support uses in close physical proximity to each other.

C. Ensure that Long Hospital and the New Hospital Addition have adequate clinical and administrative support and are aligned with education, research and specialized care programs and support that remain at the campus site.

D. Provide additional campus housing and improve campus life amenities including outdoor space.

E. ~~Strive to better achieve the remaining unfulfilled components of the 1976 Regents' Resolution by reducing space, minimizing population growth, and improving transportation-related programs.~~ Conform to the space limits and population estimates established in the Regents' Resolution Regarding the Parnassus Heights Campus Site, as amended.

F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.

3.6.2 Objectives for the CPHP

The following are objectives pertaining to the CPHP, including its Initial Phase projects.

Space

- Revitalize the aging Parnassus Heights campus to enhance its place as a premier educational, research, and clinical institution -- one that draws in research and clinical faculty, staff, students, and trainees.

- Fulfill the need for contemporary research, educational, clinical, and support spaces that have been lacking at Parnassus Heights for decades.
- Increase the quantity and improve the quality of research space, to enhance synergies between research and clinical activities at Parnassus Heights for UCSF to maintain its stature as a world-class hub of basic, translational, and clinical research.
- Connect buildings and spaces at multiple levels to foster collaboration that facilitates learning and scientific discoveries.
- Facilitate patient/pedestrian safety and functional efficiency by connecting campus buildings across and under Parnassus Avenue.
- Increase the on-campus supply of housing for students, faculty and staff, thereby minimizing the impact of UCSF-demand for housing on adjoining neighborhoods.

Urban Design

- Improve the campus's functional organization and foster intuitive wayfinding.
- Develop a framework of open spaces that enhance the campus environment by connecting people to nature.
- Create welcoming spaces for enhancing the patient/visitor experience throughout the campus site.
- Enhance connectivity between the campus site and the surrounding community.

Mobility

- Promote sustainable transportation behavior.
- Improve campus circulation options to reduce impacts on the surrounding neighborhood.
- Improve the patient and visitor parking and arrival experience.
- Create safe on- and off-street passenger drop-off zones.
- Enhance Parnassus Avenue as a campus "main street."
- Optimize the use of existing parking supply.
- Enhance overall campus functionality and efficiency.
- Improve campus circulation by way of a service corridor that facilitates loading and deliveries to campus and minimizes impacts of those activities on the neighborhood.

Objectives for Irving Street Arrival

- Create a welcoming experience for patients, visitors, students, and employees arriving at the Parnassus Heights campus site.
- Enhance and speed the pedestrian journey between Irving Street and Parnassus Avenue.
- Provide amenities that benefit the UCSF community and draw in residents from the surrounding neighborhood, such as a reception area, wellness offerings, and convenience retail.

Objectives for the Research and Academic Building

- Provide new state-of-the-art, flexible research space on the Parnassus Heights campus site expediently to replace existing obsolete wet lab space and to satisfy existing demand.
- Site and develop a new research and educational building at a location that is currently underutilized or otherwise a candidate for demolition, to minimize the disruption to campus operations that would be caused by relocation of occupants of heavily-occupied buildings.
- Provide an "empty chair" i.e., space in which to move research teams so that vacated deteriorating space can be renovated.
- Provide replacement space for the seismically deficient School of Nursing building.

Objectives for the New Hospital at Parnassus Heights

- Meet seismic requirements of California Senate Bill 1953 by developing a new, seismically-sound, state-of-the-art inpatient facility.
- Site and develop a new inpatient facility in a way that optimizes operational activities with other clinical facilities at Parnassus Heights, such as Long Hospital, a renovated and repurposed Moffitt Hospital building, and Medical Building 1.
- Increase inpatient beds at Parnassus Heights to address severe constraints on capacity and access to care, and to meet the needs of a growing and aging Bay Area population.
- Increase inpatient beds at Parnassus Heights to allow for the capacity to provide inpatient health care in times of severe strain such as the current pandemic, without resorting to reducing or canceling non-essential surgeries to create bed capacity.
- Develop a new inpatient facility that has sufficient space to accommodate modern regulatory requirements and industry standards of contemporary hospitals, such as construction codes, sizes of operating rooms, ratio of operating rooms to pre-and post-recovery areas, and space for privacy and infection control issues.
- Develop a new inpatient facility that has sufficient space to accommodate modern technology, including telemedicine, robotics, and new diagnostic, imaging, testing, treatment, surgery and laboratory equipment, all requiring substantial infrastructure and space.
- Develop a new inpatient facility that has sufficient space to accommodate patient satisfaction requirements of contemporary hospitals, such as private patient rooms of sufficient size.
- Develop a new inpatient facility that is optimized in its spatial layout to enhance functionality and efficiency.
- Develop spaces for clinical and translational research and learning in or adjacent to clinical areas where patients are located.

Objectives for the Aldea Housing Densification

- Increase the supply of housing for UCSF students and potentially faculty and staff.
- Develop housing in a cost-effective manner in order to make rents as affordable as possible for housing residents.
- Develop housing at a location that minimizes cumulative construction impacts with other proposed development along Parnassus Avenue.

3.7 CPHP

3.7.1 CPHP Features

The CPHP is a conceptual, flexible plan to meet projected space needs for critical programs in research, patient care, and education at Parnassus Heights while improving upon the functional and aesthetic design of the campus environment. The Plan also includes opportunity sites for development of much-needed on-campus housing. While the Plan guides physical development necessary to achieve the University's mission based on projected growth, it is not a commitment for growth or specific projects. It establishes a long-term development framework for the revitalization of the physical environment at Parnassus Heights, by identifying the following:

- Opportunity sites for new buildings and major renovations of existing buildings;
- Candidate buildings for demolition;
- Opportunities for development of open spaces; and
- Opportunities for improvements to on-campus mobility and circulation.

In total, the CPHP provides for development of approximately 2.90 million gsf of new building space at Parnassus Heights. The net increase in building space at the campus site under the CPHP would be approximately 2.04 million gsf, when accounting for demolition that was approved under the 2014 LRDP but yet not implemented (approximately 187,000 gsf), and potential additional building demolition that would occur under the CPHP (approximately 688,000 gsf). When accounting for existing campus site development (approximately 3.92 million gsf), and demolition, the total amount of campus space upon full implementation of the CPHP would be approximately 5.97 million gsf, including instruction, research, clinical, and support space; housing; and structured parking. (For more details regarding the space program, see Table 3-2.)

The Plan includes an "Initial Phase" that comprises: 1) Irving Street Arrival improvements, 2) Research and Academic Building (RAB), 3) New Hospital, and 4) initial Aldea Housing Densification, and as well as other Initial Phase improvements. The Initial Phase would account for approximately 1.43 million gsf of new building development, and is anticipated to be completed by approximately year 2030. Beyond the Initial Phase, the "Future Phase" encompasses the remaining approximately 1.47 million gsf of new building development described in the CPHP envisioned for completion by the horizon year of 2050.

CPHP Districts

The CPHP identifies six districts in the developed portions of the Parnassus Heights campus site as a way of organizing planned land uses in a rational manner based in part on existing land use patterns (see **Figure 3-5**).

- ***Research and Academic Commons:*** This district covers a portion of the campus site south of Parnassus Avenue and encompasses the majority of research and educational space on the campus (e.g., the Medical Sciences Building, HSIR Towers, the Dolby Regeneration Medicine Building, the Clinical Sciences Building, the School of Nursing, Koret Vision Center, Dental Clinics, and UC Hall). The CPHP envisions future development of research and academic space within this district.

- ***The North Side Gateway:*** This district includes the current location of the main arrival point to Parnassus Heights -- via public transit (the N-Judah Muni line on Irving Street and the 6 Haight-Parnassus Muni line on Parnassus Avenue) as well as via private vehicle and bicycle into the Millberry Union and Medical Building 1 parking structures on campus. This district also includes Kalmanovitz Library. Improvements to the arrival experience (i.e. the Irving Street Arrival) overlap the North Side Gateway and Clinical East End district (see below). The North Side Gateway also includes potential program space intended to welcome visitors and better integrate UCSF with the adjoining neighborhood.
- ***The Clinical East End:*** This district currently includes a cluster of major clinical facilities, such as Moffitt and Long Hospitals and Medical Building 1. The Clinical East End is where the proposed New Hospital would be located, as well as where future development of major clinical spaces could occur.
- ***The West Side:*** This district includes the West Side parking lot, the Kirkham Child Care Center, and the Proctor building. The CPHP envisions development of housing within this district, as well as a new child care center.
- ***Service Corridor:*** This is the current location of back-of-house functions that serve the buildings on the south side of Parnassus Avenue, including loading and deliveries, maintenance vehicle parking, and services to the CUP, among other functions. The CPHP envisions a more centralized and expanded service corridor that would stretch from Medical Center Way on the east side of the campus to Koret Way and to a proposed extension of Fourth Avenue on the west side of the campus.
- ***Aldea:*** The CPHP envisions development of additional housing on this site by demolishing the existing housing structures and constructing student housing in new buildings, either on existing building foundations or within a completely reconfigured and redesigned site. A small daycare center is also planned within the complex.

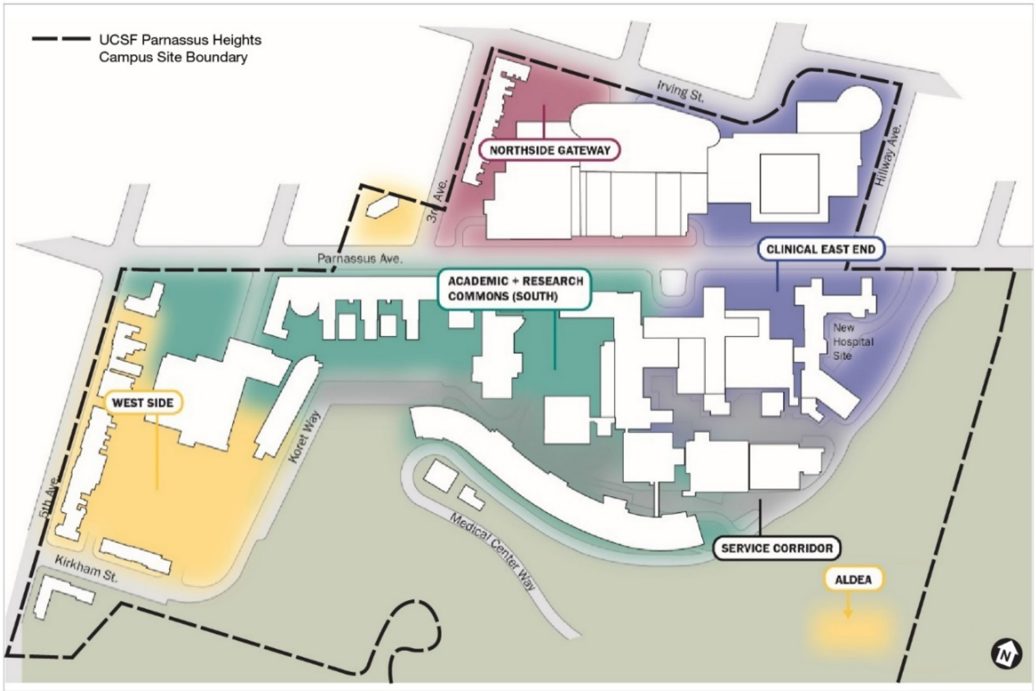


Figure 3-5
CPHP Districts

Opportunity Sites for New Development

Opportunities for new development under the CPHP include:

- New construction of clinical, educational, research, and housing facilities on opportunity sites throughout the campus (see **Figure 3-6**);
- Additional housing development at the Aldea Housing complex site;
- Open space enhancements throughout the campus, most notably the Millberry Terrace, the expansion of Saunders Court, and the Promenade to the south of the current UC Hall;
- Extension of Fourth Avenue as a campus street between Parnassus Avenue and Kirkham Street;
- Development of a service and utility corridor at the back of the campus to connect Medical Center Way to Koret Way and the proposed extension of Fourth Avenue;
- Public realm improvements, including within the campus core (along Parnassus Avenue generally between Fifth Avenue and Medical Center Way); and
- Development of a bridge across, and tunnel beneath, Parnassus Avenue associated with the New Hospital.

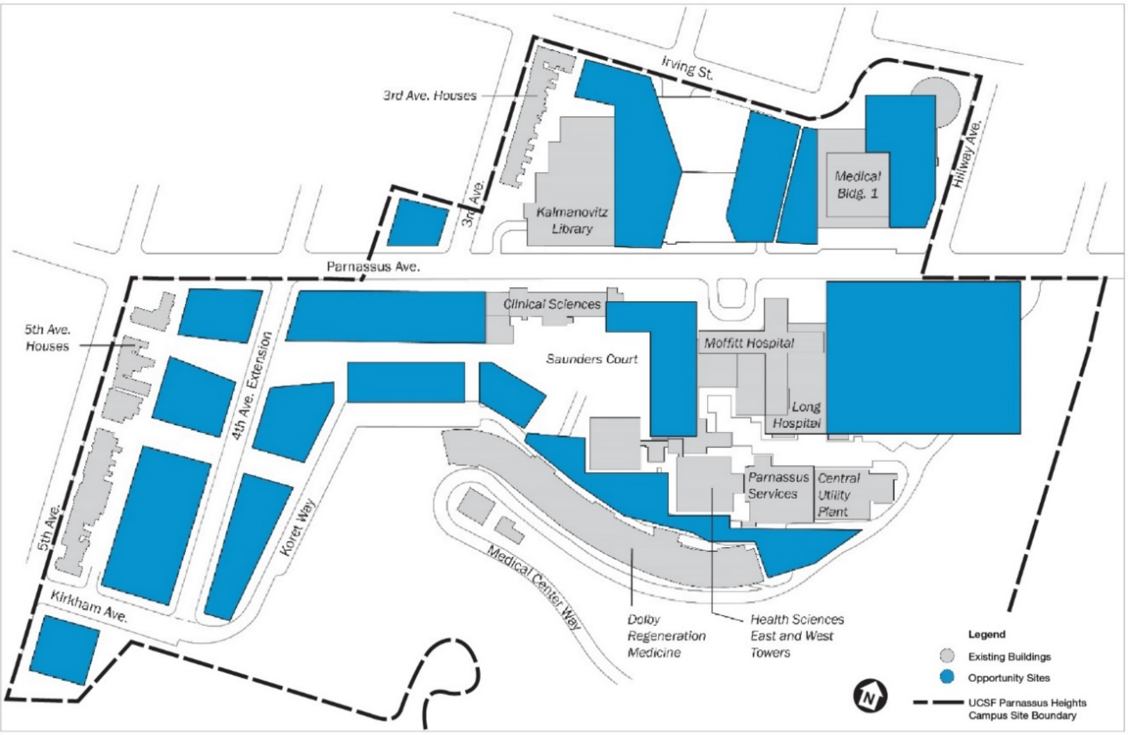


Figure 3-6
CPHP Opportunity Sites in Campus Core

The 2014 LRDP approved demolition of the LPPI, Koret Vision Center, EHS, Surge, Woods, and Proctor buildings. These buildings are also proposed for demolition under the CPHP. The LPPI is now deemed to be eligible for the California Register of Historical Resources (CRHR) based upon information that became available after certification of the 2014 LRDP FEIR. The 2014

LRDP also approved a renovation and repurposing of Moffitt Hospital for outpatient, hospital support and other non-acute care uses.

Additionally, redevelopment of the campus site under the CPHP would entail demolition of structures beyond those identified in the 2014 LRDP, to make way for new buildings. The Plan assumes the eventual demolition and replacement of up to 26 percent of existing program space on opportunity sites (see **Figure 3-7**). Demolitions to occur as part of the CPHP, in addition to those already identified for demolition in the 2014 LRDP, may include:

- UC Hall
- Dental Clinics
- School of Nursing building
- Millberry Union and Garage (either wholly or partially)
- Lucia Child Care Center
- Kirkham Child Care Center
- EHS Annex
- All of the residential structures of the Aldea Housing complex

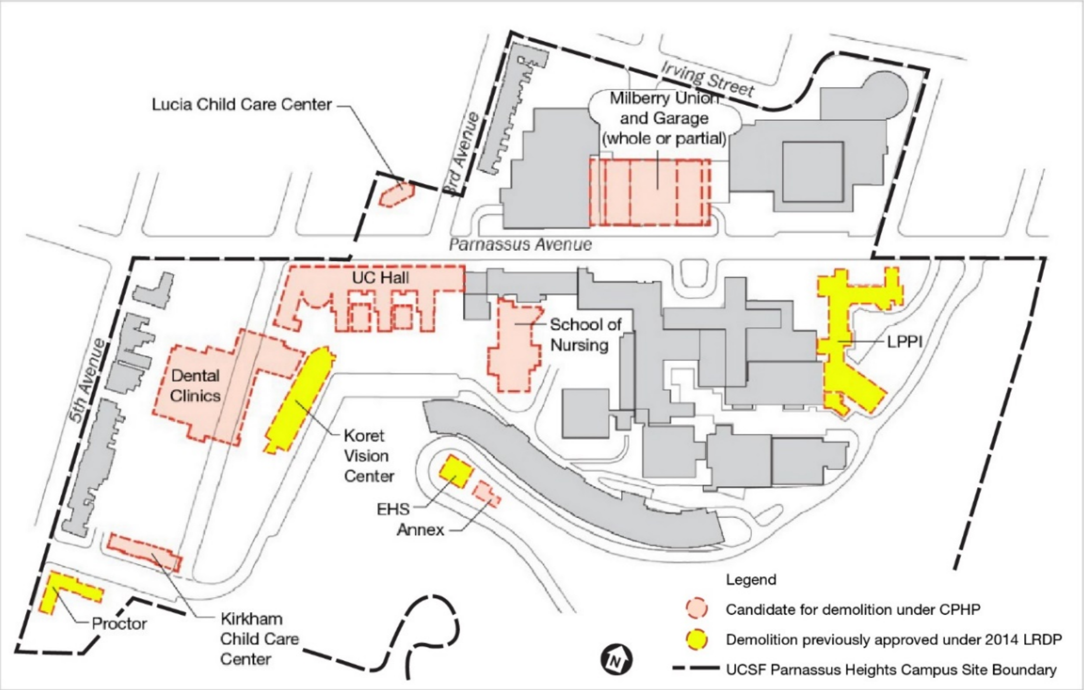
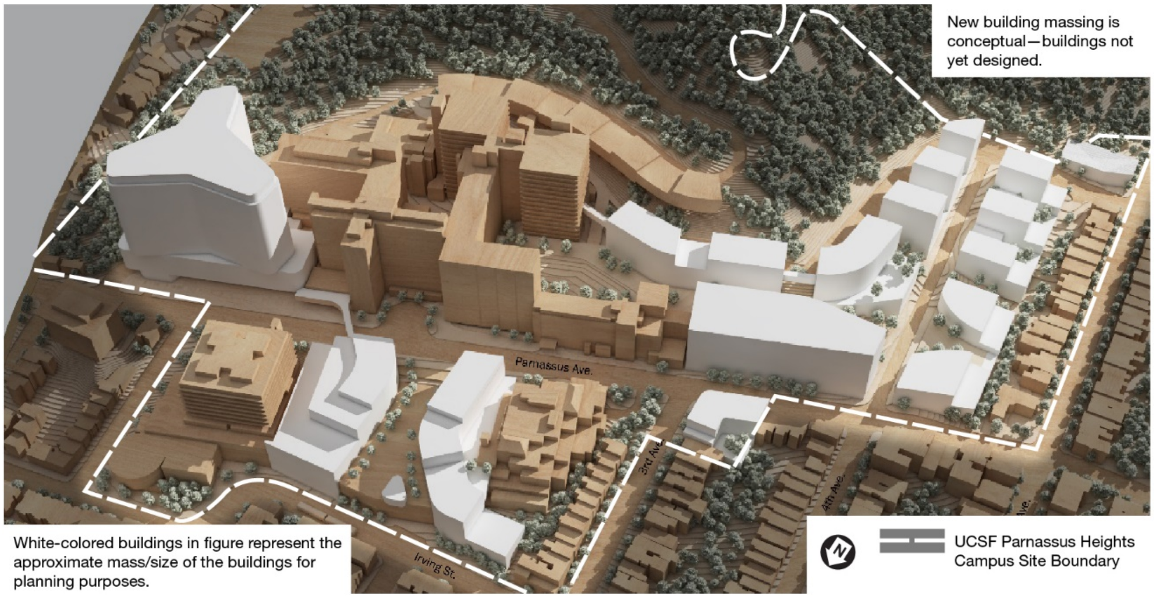


Figure 3-7
Potential Demolitions in Campus Core

As discussed further below, UC Hall, the Dental Clinics, Millberry Union and a portion of the Aldea Housing complex structures are eligible or potentially eligible for the CRHR and/or National Register of Historic Places (NRHP).

There is the potential for the New Hospital and widening of Medical Center Way to result in the need to modify the Reserve boundary. UCSF proposes to replace any area of the Reserve that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to or greater than the area lost. Please see Section 3.7.2, *Revisions to the 2014 LRDP*, for a discussion and illustration of proposed functional zones at the Parnassus Heights campus site, including estimates of the campus site proposed to be redesignated to and from the Reserve.

Figure 3-8 illustrates potential building massing for new development that would occur in these sites, and assumed for EIR analysis purposes. An illustration of existing Parnassus Heights campus core building heights compared to proposed new building heights under the CPHP are presented in **Figure 3-9**. It is important to note that building sizes, heights, and massing are conceptual and remain approximate as the buildings are not yet designed.



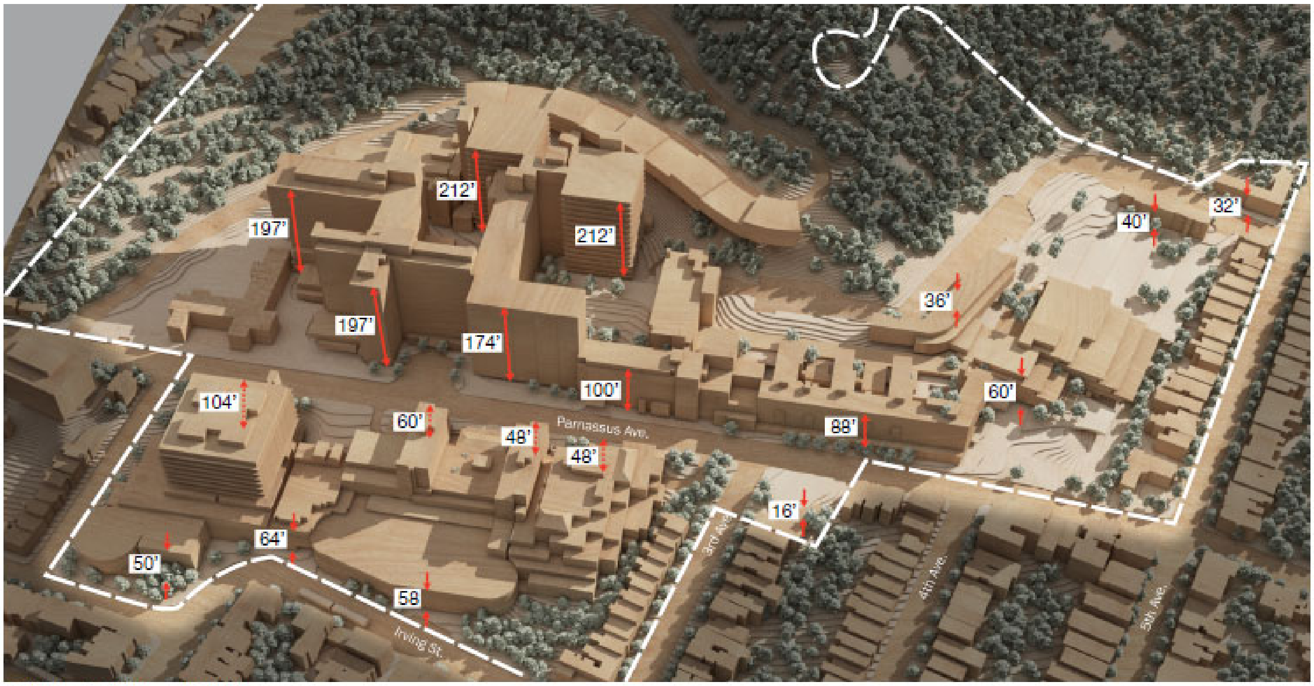
New building massing is conceptual—buildings not yet designed.

White-colored buildings in figure represent the approximate mass/size of the buildings for planning purposes.

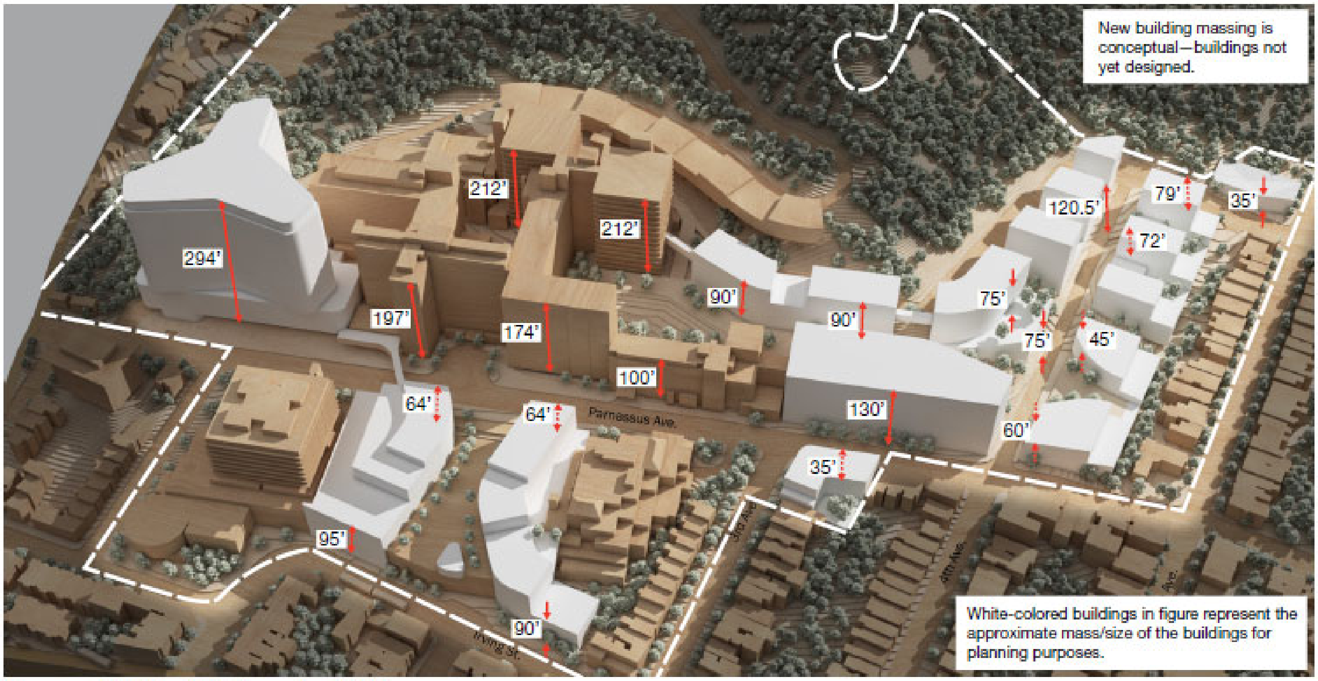
Figure 3-8
Vision for Parnassus Heights Campus Site – Development to year 2050 in Campus Core

CPHP Initial Phase

As discussed above, this EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. These near-term projects are intended to support the priorities of research space and the New Hospital, increase on-campus housing supply, and to provide benefits to the community. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR and will be analyzed at a project level in a subsequent EIR when more details are available. **Figure 3-10** identifies the location of each of these Initial Phase developments. Additional detail on each Initial Phase development is described further, below.



Existing Buildings Heights



New building massing is conceptual—buildings not yet designed.

White-colored buildings in figure represent the approximate mass/size of the buildings for planning purposes.

Proposed Building Heights under CPHP

Building heights are measured at the midpoint on street frontage, from sidewalk to roof, excluding mechanical penthouses. Based on current topographic data.

UCSF Parnassus Heights Campus Site Boundary

SFO/D190029 1.00 - UCSF CPHP EIR2. Graphics/Illustrator

SOURCE: ESA, 2020

Figure 3-9
Change in Building Heights in Campus Core under CPHP

Figure 3-10
CPHP Initial Phase Projects

Irving Street Arrival

The proposed Irving Street Arrival project is proposed to create a welcoming arrival experience at Parnassus Heights and further promote use of the N Judah by UCSF personnel and visitors. The proposal includes modification of the portion of the existing Medical Building 1 that functions as a pedestrian entrance extending from Irving Street to Parnassus Avenue.

This section of Medical Building 1 currently includes circulation space, an elevator core, and program space. As shown in the Irving Street Arrival project concept plan in **Figure 3-11**, this space would be modified or demolished in order to develop a new and/or reconfigured multi-story vertical circulation space to include express elevators or escalators, stairs, and arrival features such as information and orientation areas (the “unified lobby”). The new/modified structure would result in about 25,000 gsf net new space, and include an additional two stories on the Irving Street side (increasing to a total of 8 stories and up to 86 feet in height) and an additional two stories on the Parnassus Avenue side (increasing to a total of three stories and up to 45 feet in height). The Irving

Street Arrival project would also include replacing the facades or reskinning of the Millberry Union and Medical Building 1 garage structures. The maximum development footprint for the Irving Street Arrival project, which would include a total of five floors of new development, is illustrated in **Figure 3-12**.

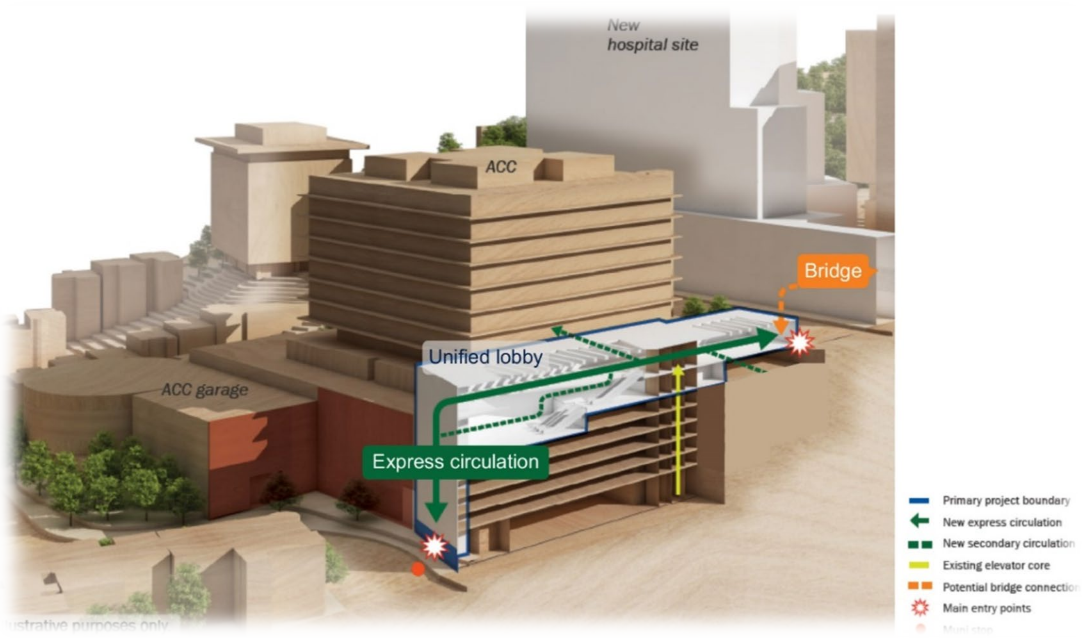


Figure 3-11
Irving Street Arrival Project Context

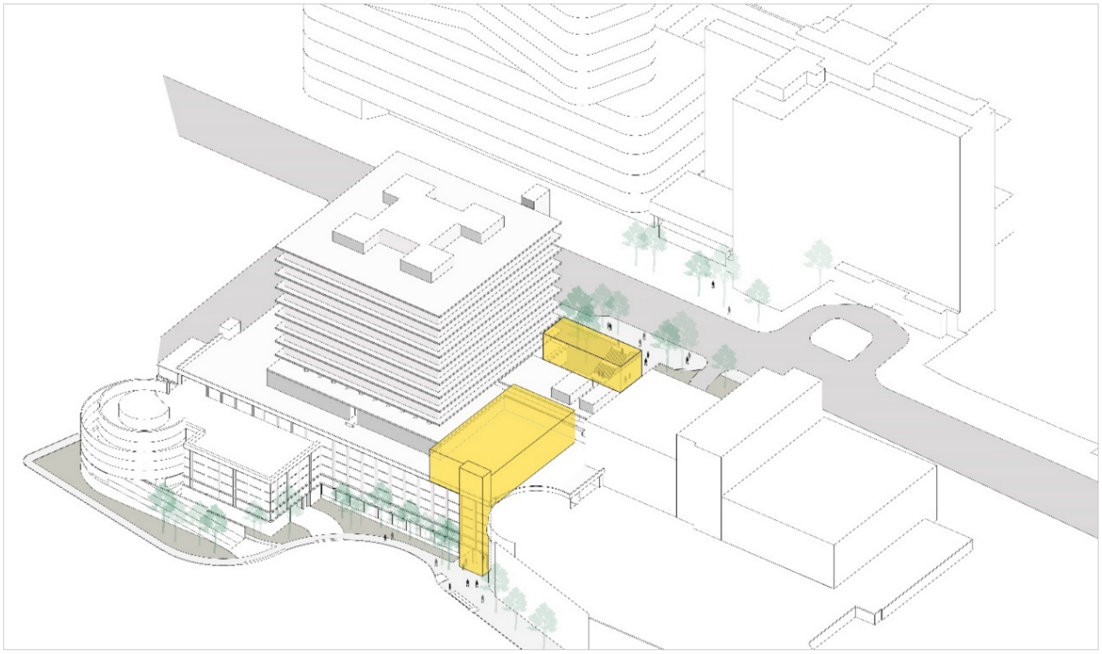


Figure 3-12
Irving Street Arrival Maximum Development Potential

Research and Academic Building

The proposed RAB would be located in the Research and Academic Commons District on the current site of UC Hall, following the proposed demolition of this building. UC Hall, which was completed in 1917, is one of the oldest buildings at Parnassus Heights and is the oldest extant hospital building in the UC system. UC Hall is potentially eligible for the National Register of Historic Places and the California Register of Historic Resources, although is not currently formally nominated for either register. The School of Nursing building would also be demolished as part of this Initial Phase project.

The proposed RAB is conceptually illustrated in **Figure 3-13**. The RAB would be approximately 270,000 gsf and eight stories tall (up to 130 feet in height) and would contain primarily research, academic and education space. (It should be noted that the conceptual RAB design presented in Figure 3-13 depicts building articulation that differs in massing from the maximum RAB building envelope as illustrated in Figure 3-7.[2])

A district plan of the Research and Academic Commons District, which includes the RAB and surrounding area, is currently underway to evaluate more closely and recommend a development sequence for the area. Development of the RAB site could also include components of the CPHP intended to be constructed incrementally that are adjacent to the RAB site, such as a portion of the Promenade (see description and Figure 3-17 below), the service/utility corridor to the south of the RAB site, and the first increment of Fourth Avenue extension to the west of the RAB site.

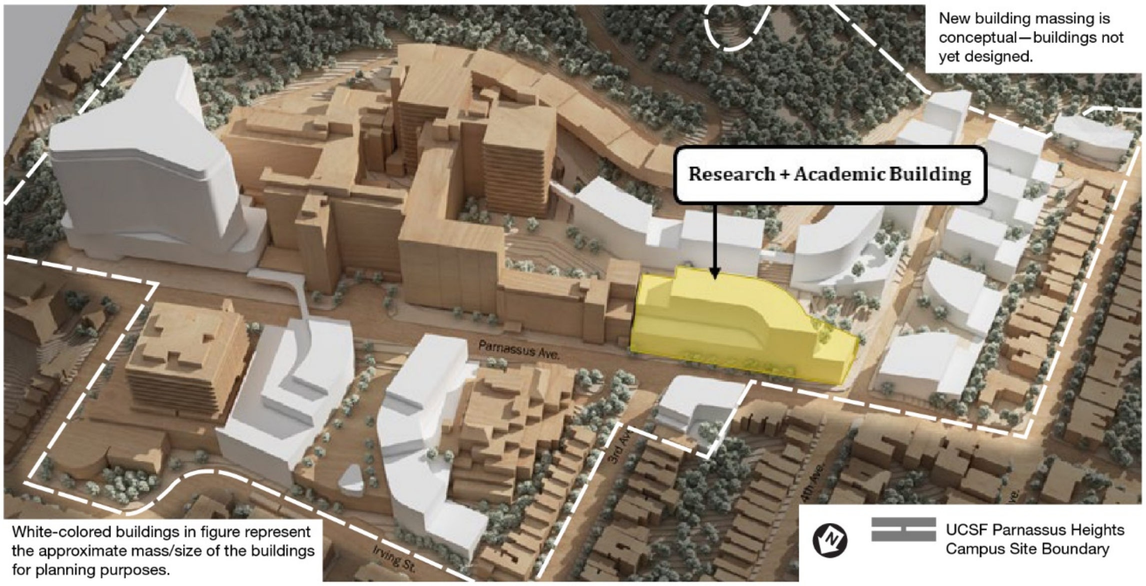


Figure 3-13
Research and Academic Building - Conceptual Building Envelope

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[2] This EIR conservatively analyzes the maximum envelope RAB design (as indicated in Figure 3-7), since it would have the greatest potential environmental impacts (please see Section 4.1, Aesthetics, Wind and Shadow for additional detail).

New Hospital, and Bridge and Tunnel Across Parnassus Avenue

The New Hospital has not yet been designed and therefore will be analyzed in more detail in a future, separate project-level EIR. Nonetheless, this EIR includes assumptions regarding the New Hospital to facilitate the analysis of program-level and cumulative impacts.

Table 3-1 presents an overview of the existing Parnassus Heights hospital program, and the hospital programs envisioned under the 2014 LRDP and the proposed CPHP. As shown in Table 3-1, there are currently 325 inpatient beds at Long Hospital and 150 inpatient beds at Moffitt Hospital, for a total of 475 inpatient beds within a combined approximate 754,400 gsf. The 2014 LRDP envisioned a New Hospital of about 308,000 gsf and 140 beds to replace the inpatient facilities that were at Moffitt Hospital; renovation and reuse of Moffitt Hospital for outpatient, support and other campus uses; and reduction in the inpatient beds at Long Hospital to 299 beds, for a total of approximately 439 inpatient beds at Parnassus Heights. At that time of preparation of the 2014 LRDP, the New Hospital size was based on meeting basic clinical needs in response to SB 1953, with a minimal program that could be accommodated on the LPPI site while staying as close as possible to the existing Parnassus Heights space ceiling.

TABLE 3-1
PARNASSUS HEIGHTS HOSPITAL PROGRAM

	2014 LRDP		**Existing (2020)**		**CPHP**		**CPHP as Modified and Studied in EIR**	
	Beds	**GSF**	**Beds**	**GSF**	**Beds**	**GSF**	**Beds**	**GSF**
Moffitt Hospital			150	385,800	100	385,800		
Long Hospital	299	368,600	325	368,600	291	368,600	291	368,600
Proposed New Hospital	140	308,000			284	563,000	384	955,000
Total	**439**	**676,600**	**475**	**754,400**	**675**	**1,317,400**	**675**	**1,323,600**

SOURCE: UCSF, 2020

In response to the CPHP project needs discussed in Section 3.5 and consistent with the project objectives presented in Section 3.6, above, the proposed CPHP Final Report (October, 2019) envisioned development of an approximately 563,000 gsf New Hospital on the site of LPPI, with a capacity for 284 inpatient beds. The CPHP Final Report assumed maintaining 100 inpatient beds at Moffitt Hospital and 291 inpatient beds at Long Hospital. Collectively, the CPHP would provide for 675 inpatient beds, an increase of 200 beds over existing conditions.

As master planning for the Parnassus Heights campus site progressed, the University identified certain aspects of the CPHP necessitating modification, including the provision for additional New Hospital building space beyond that assumed in the CPHP Final Report. Under the CPHP as modified, the 100 inpatient beds originally proposed to be maintained in Moffitt Hospital would instead be located in the New Hospital, thereby allowing these 100 inpatient beds to be developed to modern clinical standards in the New Hospital and creating additional space at Moffitt Hospital to accommodate other clinical uses that would support the New Hospital. As shown in Table 3-1, this modification would increase the inpatient beds at the New Hospital from 284 to 384.

Collectively, the CPHP as modified would provide for 675 inpatient beds, the same as that contemplated under the original CPHP.

Other factors informing the size of the New Hospital include complying with applicable codes and regulations for new hospitals that require among other things taller floor heights and additional space to accommodate mechanical equipment and hospital support functions. The New Hospital conceptual design as modified also reflects considerations to further improve operational efficiency, including providing operating rooms and critical supporting functions on the same level.

The proposed New Hospital would be located on the site of LPPI and adjacent land on the south side of Parnassus Avenue and east of Moffitt Hospital (see **Figure 3-14** for the study area in which the New Hospital would be developed). As currently envisioned, the New Hospital would be about 955,000 gsf, and 16 stories tall (up to 294 feet in height).[3] The preliminary concept for the New Hospital consists of a 5-story podium, above which an 11-story tower would rise.

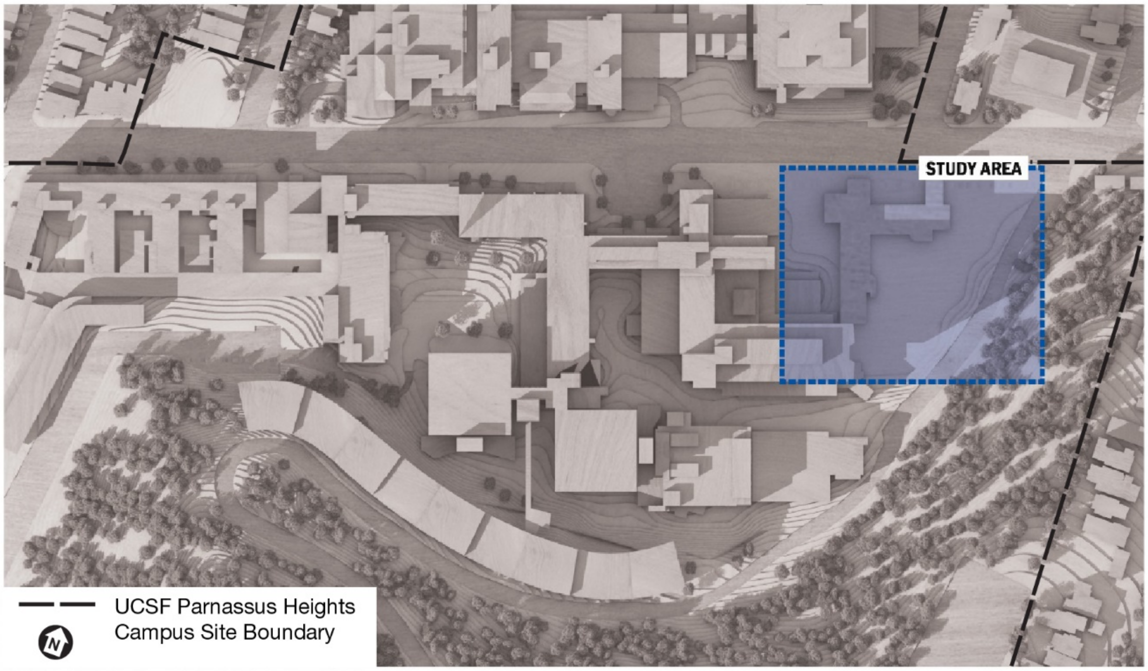

Figure 3-14
New Hospital Study Area

There is the potential for the proposed New Hospital and associated widening of Medical Center Way adjacent to the New Hospital (which must be done for fire safety purposes) to require modification of the Reserve boundary. As indicated above, UCSF proposes to replace any area of

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[3] Including potential rooftop observation deck and elevator vestibule that would occupy a portion of the roof. As currently conceived, the majority of mechanical equipment would be contained within various levels of the New Hospital to minimize the amount of equipment located on the roof; components of mechanical equipment located on the roof may slightly exceed the 294 feet in height.

the Reserve that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to or greater than the area lost.

To facilitate pedestrian safety, ease of crossing Parnassus Avenue, and patient transport, a pedestrian bridge over Parnassus Avenue is proposed connecting the New Hospital to the Irving Street Arrival (**Figure 3-15**). A tunnel beneath Parnassus Avenue connecting the south side of the campus to the north side is also proposed. The tunnel is intended for pedestrians, utility lines, and the movement of goods and materials, to reduce the amount of activity and congestion that occurs on Parnassus Avenue and to provide a safer crossing experience for patients, visitors, employees, and students. As currently envisioned, the proposed pedestrian bridge would span approximately 90 feet across Parnassus Avenue. The enclosed bridge structure is assumed to be about 12 feet wide and 16 feet tall and situated up to 30 feet above grade, for a total height of up to 46 feet from grade to the top of the structure. The proposed tunnel would be about 20 feet wide and be located approximately 30 to 40 feet below grade.

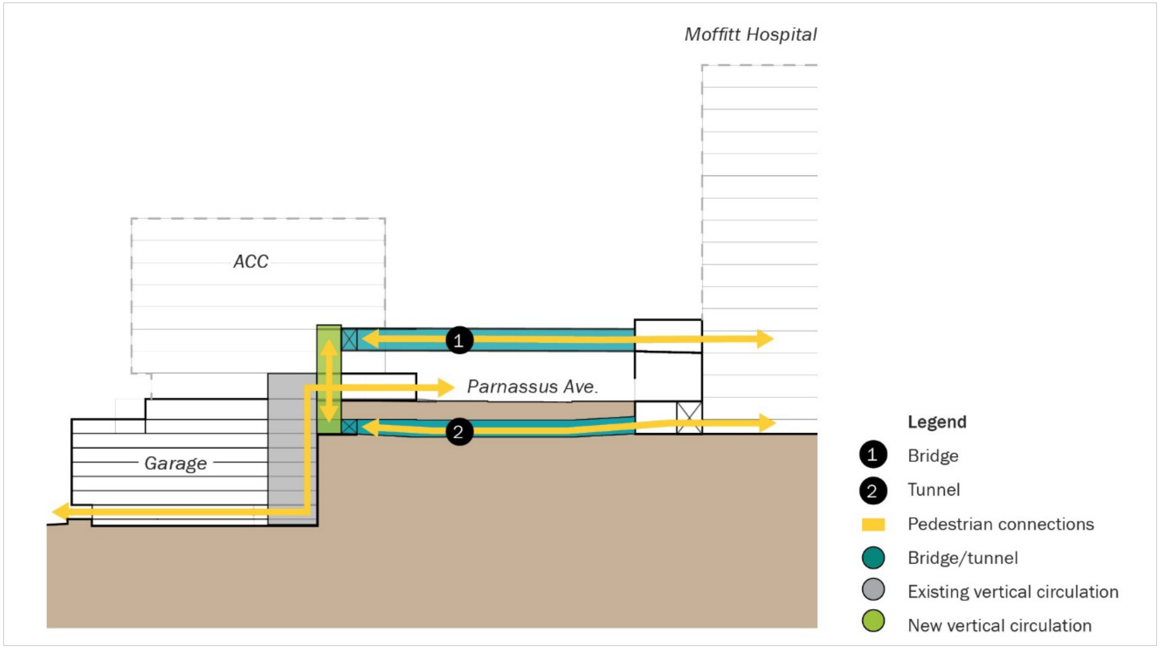

Figure 3-15
Proposed Parnassus Avenue Bridge and Tunnel

In addition, a temporary construction office [i.e., Integrated Center for Design & Construction (ICDC)] would be developed to facilitate construction of the proposed New Hospital, RAB, Irving Street Arrival and Parnassus Avenue Streetscape, and would range in size between approximately 25,000 to 45,000 sf. The ICDC would be located within the campus site boundary, taking up one or two floors of the Kalmanovitz Library Garage (which would temporarily displace about 60 parking spaces per floor).

Initial Aldea Housing Densification

The CPHP envisions densification of the Aldea Housing complex site by demolishing the existing student housing structures (note the University House would remain), and constructing student housing in new buildings, in the approximate location of existing building foundations. This development would be phased over time to avoid displacement of housing residents and to minimize the amount of disruption caused by construction activities. In the initial phase, the three existing 3-story 1960s-era housing structures (individually eligible for the CRHR and NRHP) depicted in Figure 3-10 would be replaced with three 8-story housing structures (up to 96 feet in height) and one 5-story housing structure (up to 60 feet in height) as illustrated in **Figure 3-16** and **Figure 3-17**, increasing the number of dwelling units by 142 units (i.e., from 42 existing units to a proposed 184 units); and a net increase of approximately 153,000 gsf new building space. Parking would be provided at a ratio of one parking space per unit. To address stormwater management, site improvements would incorporate Low-Impact Design (LID) and green infrastructure (GI) features.

Figure 3-16
Initial Aldea Housing Densification Location and Building Type

Figure 3-17
Conceptual Massing – Initial and Future Phases of Aldea Housing Densification

Other CPHP Initial Phase Improvements

Utility Improvements

Service Corridor and Utility Line Extensions

A proposed multi-level service corridor would extend from roughly Medical Center Way to Koret Way and the new extension of Fourth Avenue to facilitate transport of goods and materials for back-of-house functions and to provide easy access to major utility lines serving the campus. The service corridor is envisioned to be located above ground on its east end. Given the existing topography, several options are being considered for its routing on the western end. On the west end, the service corridor would be located underground and could extend north below the proposed Promenade, and/or could extend to the south to Koret Way before terminating at the new Fourth Avenue extension. The service corridor would be a key component of a campus-wide utility loop that would connect into existing utility lines. Utilities anticipated in the service corridor include steam, chilled water, condensate return pipes, domestic and fire water, electrical and communications. A conceptual diagram of proposed main line utility infrastructure pathways is presented in **Figure 3-18**.

In addition, existing utilities in the vicinity of the New Hospital site would be modified or relocated to enhance functionality of utilities serving the campus site and to improve aesthetics along Parnassus Avenue.

Additional detail on notable utility improvements throughout the campus site is provided below.

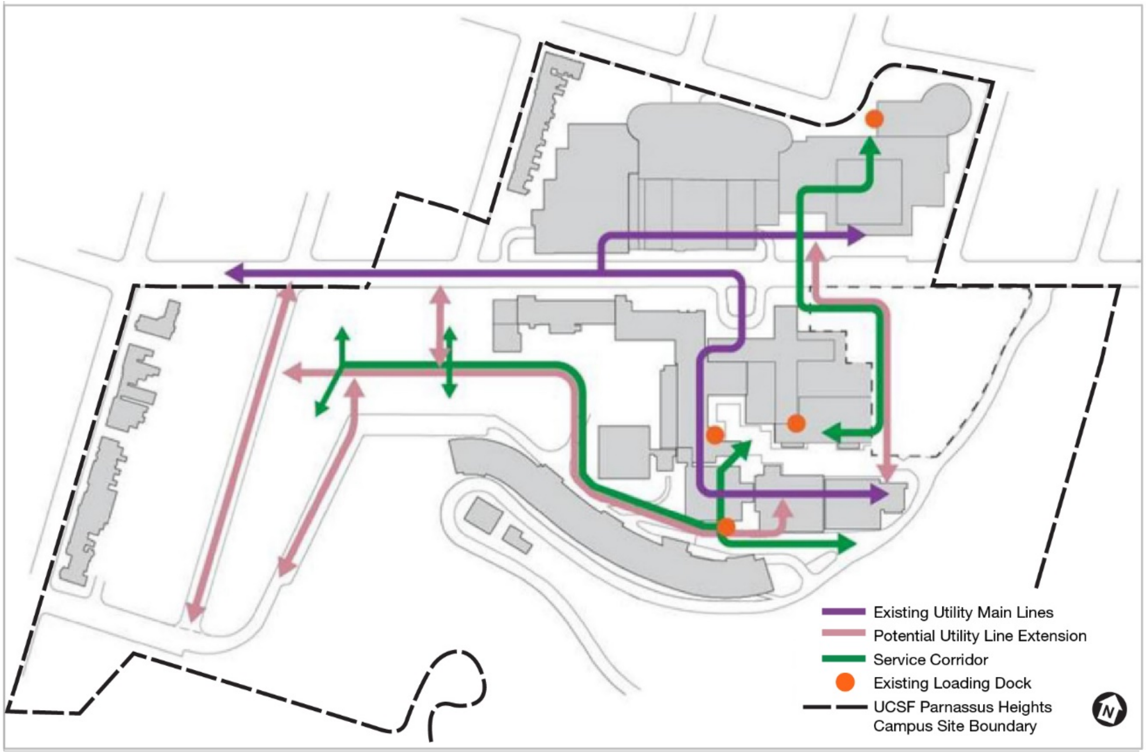

Figure 3-18
Conceptual Diagram of Proposed Main Line Utility Infrastructure Pathways

Fuel Tank Replacement
UCSF currently has five underground single-walled fiberglass diesel storage tanks located beneath Medical Center Way that serve the CUP generators and boilers, providing fuel for backup power in the event of an emergency. Each tank has a capacity of 30,000 gallons, for a total storage capacity of 150,000 gallons. These tanks do not meet current code requirements and must be replaced with new code-compliant tanks by 2025. UCSF proposes to remove the existing tanks and install new code-compliant below-ground diesel tanks with a maximum allowable capacity of approximately 210,000 gallons. The preferred design option includes replacement of the existing tanks with up to 10 new approximately 21,000-gallon tanks beneath Medical Center Way in the vicinity of the Dolby Regeneration Medicine building. No permanent aboveground tanks are planned.

It is anticipated that three temporary fuel storage tanks would first be installed south of, and adjacent to, the Parnassus Services Building. Grading would then occur within Medical Center Way and on the adjacent hillside to the south, requiring removal of vegetation, and installation of a replacement retaining wall. The existing fuel tanks would then be removed, and the new fuel tanks would be installed. Lastly, a widened Medical Center Way would then be rebuilt along this affected segment, and revegetation conducted as needed. Applicable monitoring and safety systems and measures would be installed to ensure safe operation of the new fuel tanks.

Ammonia Tank Replacement

UCSF currently maintains an 8,000-gallon ammonia tank in a small building located near the intersection of Parnassus Avenue and Medical Center Way. Under the CPHP, UCSF would remove and replace this tank with an 10,000-gallon aqueous urea tank, to be located just south of the CUP.

Domestic and Emergency Water

Some of the existing domestic and fire water lines and systems on the Parnassus Heights campus site are in poor condition or close to the end of their useful service life, and would need to be replaced in order to serve the net new development envisioned under the proposed CPHP. In addition, several new water storage tanks are required to serve net new development envisioned under the proposed CPHP. Two existing 20,000-gallon emergency water tanks located on land adjacent to the Reserve west of Medical Center Way (and west of the Woods parking lot) would be replaced with two new 180,000-gallon emergency water tanks at the same location to serve the western portion of the campus core. Each tank may be installed above- or below-ground, and measure approximately 20 feet in height by 40 feet in diameter. Other new water storage tanks, including a new 110,000-gallon tank to provide emergency and domestic water storage for the existing hospitals and proposed New Hospital, and a new 52,000-gallon domestic water storage tank to provide backup domestic water storage for the CUP, would be installed within the basement of the New Hospital.

Wastewater / Stormwater

The combined sewer system (CSS) that serves the campus core varies in age and material, and would need to be replaced in order to serve the net new development envisioned under the proposed CPHP. In addition, the proposed CPHP would require several existing sewer networks on the west side of the campus site to be reconfigured. The CSS system serving the Aldea Housing complex may also need to be upsized pending verification, and modifications to existing stormwater catchments may change how run-off is collected, likely requiring new drainage inlets and pipe improvements. Also, the existing hospitals and proposed New Hospital would require a new tank to provide onsite emergency sewer effluent storage (approximately 110,000 gallons); this tank would be installed within the New Hospital basement.

Electric and Natural Gas

The existing electrical infrastructure at the campus site is not capable of bearing the anticipated power demand increase associated with the net new development envisioned under proposed CPHP. As a result, improvements would be needed to the existing electrical system to distribute electricity across the campus site. Key improvements include adding two new PG&E connections to increase the transmission capacity provide up to 30 MW of electricity to the campus site, the creation of a service corridor pathway on the south side of the campus core to enable the creation of a campus loop 12 kV distribution system, and a connection across Parnassus Avenue (via the bridge and/or tunnel described above) to improve redundancy on the north side of the campus core. Natural gas branch lines would also need to be installed to serve new development envisioned in the proposed CPHP.

Heating and Chilled Water

The existing heating and chilled water network would need to be extended to connect existing and proposed buildings under the proposed CPHP, which would require the construction of a heating hot water and chilled water loop throughout the campus site. The system would utilize the proposed bridge and/or tunnel across Parnassus Avenue described above and include another crossing of Parnassus Avenue near 4th Avenue. The system would also follow the alignment of the proposed service corridor on the south side of the campus core.

Telecommunications

Several improvements to the telecommunications system serving the campus site would be needed to serve development anticipated under the proposed CPHP. Near-term improvements include placing new pathway and fiber optic cable in a new tunnel across Parnassus Avenue and along Medical Center Way to the Aldea Housing complex.

Parnassus Avenue Streetscape Plan

The 2014 LRDP FEIR analyzed the Parnassus Streetscape Plan, a proposal that calls for improvements along Parnassus Avenue generally between Fifth Avenue and Medical Center Way. The purpose of the proposed improvements is to make crossing the street safer and more convenient for pedestrians; increase bicycle safety; reorganize and improve transit and UCSF shuttle operations; create more usable outdoor pedestrian space; strengthen UCSF's identity; and enhance the public realm as called for in the UCSF Physical Design Framework. Specific improvements include new paving, street furniture, lighting, and street trees, as well as sidewalk and crosswalk widening in certain locations and better defined campus gateways. These improvements are proposed to occur in phases starting on the south side of Parnassus Avenue, at the west end of Fifth Avenue, and extending to Medical Center Way. The improvements are proposed to be implemented following the principle of adjacency – that is, implemented incrementally as adjacent new buildings or substantial renovations are completed.

With the proposed CPHP, it is expected that slight modifications to the Parnassus Avenue Streetscape Plan would be made to conform to new development proposals that front Parnassus Avenue. Those modifications would be specified as adjacent new buildings are designed.

Opportunities for Renovation of Existing Buildings

A certain portion of existing space undergoes renovation at Parnassus Heights annually. As individual renovation projects are proposed, they are reviewed for consistency with the 2014 LRDP and assessed for CEQA compliance. The CPHP identifies opportunity sites for building renovations (i.e., separate from those buildings identified in the CPHP as opportunity sites for demolition and new construction). Opportunity sites for notable renovations include the HSIR Towers and the Medical Sciences Building. As discussed above, renovation and reuse of Moffitt Hospital for outpatient, support and other campus uses was previously approved under the 2014 LRDP.

Community Investments

UCSF may voluntarily propose improvements to public streets or other public realm areas that, while not considered mitigation measures under CEQA, may nonetheless improve operations or otherwise enhance conditions at those locations. Such voluntary improvements, or “community investments,” may include, but are not limited to, payment to the City of San Francisco for stop signs and/or traffic signals at intersections, turning lanes, curb extensions to improve sightlines and crosswalks to clarify rights-of-way, greening, and other traffic-calming measures or public realm enhancements.

CPHP Future Phase

The CPHP Future Phase comprises all remaining development opportunities identified under the CPHP. Potential development includes the following:

Millberry Union New Towers and Terrace

Millberry Union is individually eligible for the CRHR and NRHP. The CPHP envisions redevelopment of Millberry Union by demolishing the existing Millberry Union towers and constructing a larger facility of about 230,000 gsf. The two new towers that would flank the new terrace would be five stories (up to 64 feet in height) as measured from Parnassus Avenue; and eight stories (up to 90 to 95 feet in height) along Irving Street. The new building could contain clinical, instruction, and research space, as well as campus community space (i.e. potentially retail and meeting space, wellness facilities, and other active uses to better integrate with the community).

It is possible that in order to construct the facility, the existing Millberry Union would need to be demolished in its entirety, depending on the seismic condition of the building, cost, and other factors at the time the proposal is implemented. It is also possible that the Millberry Union garage, upon which Millberry Union sits, would need to be reconstructed in order to support the new structure.

Hotel for Patients and Families

The CPHP envisions the demolition of the existing Lucia Child Care center and the construction of a 48,000 gsf hotel to provide lodging for both patients and families of patients who are receiving treatment at the hospital for an extended period. The Plan envisions a building of about three stories and up to 35 feet in height. A nominal amount of parking could be constructed on this site.

New Program Adjacent to RAB

The CPHP identifies opportunities for future development behind the future RAB on a site that is largely vacant except for a small storage and loading area. The CPHP also identifies opportunities for future development to the southwest of the RAB, which would necessitate demolition of the Koret Vision Center building and Dental Clinics building. The Dental Clinics building is individually eligible for the CRHR and the NRHP. Future uses in these new spaces, which would total about 435,000 gsf, would include primarily research and academic space. The buildings would range from three to nine stories (up to 45 to 130 feet in height). The existing Faculty Alumni House as well as UCSF-owned housing along the east side of Fifth Avenue would remain.

West Side Housing

The CPHP includes the development of new housing for students and staff to address the pressing need for affordable housing in San Francisco. Approximately 280,000 gsf of new housing within the West Side district would be located on both sides of the proposed Fourth Avenue extension. Approximately 430 units of housing are planned. The structures would range from approximately six to ten stories, up to 72 feet to 120 feet in height and would step down (east to west) along the slope.

Development on the site would require demolition of the Kirkham Child Care center and the West Side Parking Lot. Parking spaces lost from demolition of the West Side Parking Lot and from alterations of the Millberry Union garage would be replaced at the West Side Housing site; approximately 190 parking spaces at this site are proposed.

Child Care on Proctor Site

The CPHP envisions that the Proctor building would be demolished and replaced with a new three-story, up to 35-foot tall childcare facility of about 35,000 gsf. An outdoor play area, a nominal amount of on-site parking, and a drop-off area would be included.

Future Phase of Aldea Housing

In the Future Phase, the remaining nine 3-story existing housing structures in the Aldea Housing complex would be replaced with eight 5-story housing structures (up to 60 feet in height), increasing the number of dwelling units in this phase by 190 units); and a net increase of approximately 225,000 gsf new building space. A small daycare center of about 15,000 gsf is also planned within the complex under the CPHP.

When considering the initial phase and future phase collectively, the number of dwelling units in the Aldea Housing complex would increase from 172 units to 504 units (an increase of 332 units); a total net increase of about 378,000 gsf new building space.

Open Space

The Plan envisions an increase in the amount of usable open space on the campus site. The most notable of these spaces include the Millberry Terrace, to be located atop the altered or new Millberry Union garage; an expansion of Saunders Court; and the proposed Promenade (see **Figure 3-19**). The proposed east-west Promenade would be located to the west of Saunders Court and south of the RAB, and provide pedestrian access between the principal campus site research/hospital uses and the West Side district. The Plan also indicates potential additional pathways leading to the Mount Sutro Open Space Reserve.

Utilities and Infrastructure

Additional domestic and emergency water, waste wastewater/stormwater, electric and natural gas, heating and chilled water, and/or telecommunications utility improvements would occur throughout the campus site to accommodate Future Phase development, including but not limited to, utility improvements to serve the proposed Future Phase development on the west side of the campus core, and Future Phase Aldea Housing development.

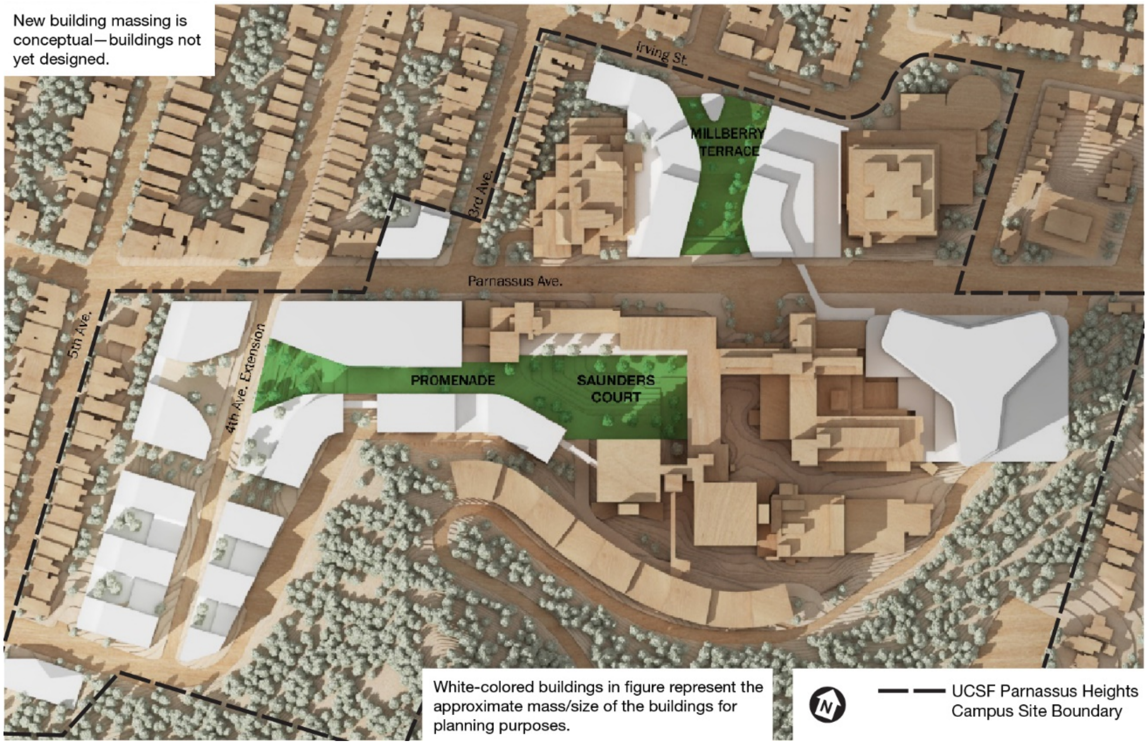

Figure 3-19
Proposed Open Space Areas in Campus Core

Circulation, Transportation and Parking

As mentioned above, the Plan envisions the extension of Fourth Avenue as a campus street between Parnassus Avenue and Kirkham Street. The extension of Fourth Avenue would serve as the main access point for future new buildings to the west of the proposed RAB, including the new housing structures on the West Side.

CPHP Construction

Construction Overview

As described in more detail below, construction would begin in mid-2021, with Initial Phase projects anticipated to be completed by 2030, and Future phase projects implemented over the remainder of the CPHP and completed by horizon year 2050. Depending on the individual CPHP project, construction activities would include, but not be limited to, demolition or renovation of certain existing campus site buildings; site clearing, excavation, and grading activities; new building foundation and vertical construction; new street, sidewalk and service corridor construction; installation of utilities; building interior finishing; and exterior hardscaping and landscaping improvements.

CPHP construction would generate temporary construction workers on-site that would vary, depending on the specific construction activities being performed and overlap between construction of individual projects. A variety of mobile and stationary construction equipment would be used at the campus site and/or immediate vicinity during construction. This is expected to include use of cranes for pier drilling for foundations, steel and/or precast erection, and building façades. Other mobile equipment such as excavators, backhoes, front-end loaders, dump trucks, concrete boom trucks and forklifts would be used at the project site for a range of other construction tasks on the project site, including site clearing, excavation and grading, building construction, and/or hardscape and landscape materials installation. Project construction would generate off-site truck trips for deliveries of concrete and other building materials, transportation of construction equipment to and from the site, hauling soils and debris from the site, and street sweepers. A variety of other smaller mechanical equipment would also be used at the project site during the construction period, such as saw cutters, chopping saws, tile saws, stud impact guns, impact drills, torque wrenches, welding machines, and concrete boom pumps. The proposed tunnel under Parnassus Avenue would be constructed by means of either boring or open cut excavation. Depending on location within the campus site and depth of excavation, limited and temporary dewatering may be required for individual projects during construction; in which case, water would be discharged to the City's sewer system, after treatment, if necessary.

Potential on-site CPHP construction materials/construction worker staging areas would include: the 1) the existing parking lot area located south of UC Hall (i.e., site of the former Laboratory of Radiobiology building); 2) the Surge parking lot, and/or 3) the top level of the Medical Building 1 parking lot. Certain roads within the campus site, most notably Medical Center Way, are likely to be partially or fully closed for limited durations during construction. (See also potential off-site roads temporarily affected during CPHP construction, below).

No pile driving or blasting activities are proposed during construction of projects proposed under the CPHP. Rather, foundations would be installed using drilled piers; and excavation of soft rock would be conducted using hydraulic heavy excavators.

Construction under the CPHP is proposed to occur consistent with Section 2908 of the City Police Code, known as the San Francisco Noise Ordinance. Although UCSF is not subject to the noise ordinance, it strives to be consistent with it to the extent feasible.[4]

Estimated CPHP Construction Timeline

CPHP Initial Phase

It is anticipated that the CPHP Initial Phase would be constructed along the following approximate timeline:

Irving Street Arrival:	Early 2022 to end of 2023
Research and Academic Building:	Early 2022 to end of 2025

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[4] Section 2908 prohibits erecting, constructing, demolishing, excavating for, altering, or repairing any building or structures between the hours of 8:00 p.m. of any day and 7:00 a.m. of the following day if the noise level created is in excess of the ambient noise level by 5 dBA at the nearest property line.

New Hospital: Mid 2023 to beginning of 2030[5]

Initial phase of Aldea Housing Densification: From 2028 to end of 2030

Renovation of Existing Buildings: Ongoing

Parnassus Avenue Streetscape: Concurrent with Projects (principle of adjacency)

Bridge and Tunnel: Mid 2023 to beginning of 2030 (concurrent with New Hospital)

Actual timelines for individual construction projects may be influenced by factors outside of UCSF's control, including, but not limited to, economic conditions (e.g., as a consequence of the present COVID-19 pandemic), weather, and other considerations.

CPHP Future Phase

After year 2030, the sequencing of the individual CPHP Future Phase projects is speculative. However, for purposes of the EIR, all remaining potential development under the CPHP is assumed to be completed by the horizon year of the Plan, by about year 2050.

CPHP Construction, Demolition and Excavation

In total, the CPHP would result in an estimated 2.89 million gsf of new building construction, 688,000 gsf of existing building demolition, and approximately 393,000 cubic yards (cy) of excavation of materials, within the campus site.[6] The following provides additional detail, by phase.

CPHP Initial Phase

During the CPHP Initial Phase, there would be approximately 1.43 million gsf of new building construction within the campus site. In addition, there would be approximately 287,000 gsf of existing building demolition within the campus site during the Initial Phase. This includes approximately 30,000 gsf of building demolition to accommodate the proposed Irving Street Arrival project, 254,000 gsf for demolition of UC Hall and School of Nursing to make way for the proposed RAB, and an estimated 24,000 gsf of demolition for three of the existing Aldea Housing structures.

It is also estimated that during the CPHP Initial Phase, approximately 233,000 cy of material would be excavated from the campus site to accommodate the Initial Phase projects. This includes excavation of approximately 1,000 cy associated with the proposed Irving Street Arrival; 77,000 cy beneath, and south of, UC Hall to accommodate the RAB; 150,000 cy to accommodate

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[5] An exception is development of the proposed temporary ICDC office to facilitate the construction of the New Hospital. The ICDC would be constructed either within the Kalmanovitz Library Garage as early mid/late 2021, off-site at the Kezar parking lot as early as 2021, or off-site within the 350 Parnassus Avenue building as early as the end of 2023 following the planned retrofit of that building.

[6] As noted above, separate from the CPHP demolition activities addressed here, additional building demolition within the campus site was previously contemplated in the 2014 LRDP and analyzed in the 2014 LRDP Final EIR, including demolition of the LPPI, Koret Vision Center, EHS, Surge, Woods and Proctor buildings. This would account for an additional approximate 187,000 gsf existing building demolition over the course of the CPHP.

the New Hospital, and tunnel beneath Parnassus Avenue; and 5,000 cy associated with the initial Aldea Housing Densification).

Preliminary plans indicate the proposed New Hospital would be programmed with a basement and sub-basement. In addition, preliminary plans indicate the New Hospital podium levels 3, 4 and 5 would extend both above a widened Medical Center Way and into the adjacent hillside in the Reserve. This would require tree removal, excavation and regrading of a portion of this hillside, and shoring of the hillside around the perimeter of the building footprint.

CPHP Future Phase

During the CPHP Future Phase, there would be approximately 1.47 million gsf of new building construction within the campus site. In addition, there would be approximately 401,000 of existing building demolition during the Future Phase, including 135,000 gsf associated demolition of the Dental Clinics building; 153,000 gsf related to demolition of the Millberry Union towers; 102,000 gsf associated with demolition of nine Aldea Housing structures; and approximately 11,000 gsf collectively for demolition of the Lucia and Kirkham Child Care Centers.

It is also estimated that during the CPHP Future Phase, approximately 139,000 cy of material would be excavated to accommodate new development throughout the campus site, including along the proposed Fourth Avenue extension, Saunders Court, and service corridor; at Millberry Union; and at the Aldea Housing complex.

Off-site Construction

While the great majority of construction under the CPHP is proposed within the campus site boundary, certain CPHP elements would require construction off-site. This includes: implementation of streetscape improvements on Parnassus Avenue as part of the Parnassus Avenue Streetscape Plan; connection of the proposed Fourth Avenue extension with Parnassus Avenue; and construction along Parnassus and Irving Avenue frontages (e.g., for Irving Street Arrival, RAB and New Hospital projects), and bridge over and tunnel under Parnassus Avenue. Depending on activity, off-site construction may result in temporary partial public road closures, including on Parnassus and/or Irving Avenue.

In addition, certain off-site utility extensions/connections would occur within adjacent public streets under the CPHP; and related to a potential new off-site potable water line extension between the south terminus of Fifth Avenue and north terminus of Crestmont Drive.

Tree Removal

As indicated above, certain tree removal would be required under the CPHP as a result of clearing, excavation and regrading activities. This includes, but is not limited to, areas within the Reserve (e.g., on the hillside east of the New Hospital, and locations adjacent to Medical Center Way), elsewhere within the campus site (e.g., redwood grove along Parnassus Avenue west of UC Hall, and miscellaneous areas of ornamental landscaping), and off-site (e.g., street trees along Parnassus Avenue and/or Irving Street).

3.7.2 Revisions to the 2014 LRDP

Proposed LRDP Amendment No. 6[7] would revise those portions of the 2014 LRDP pertaining to Parnassus Heights to incorporate concepts and proposals identified in the CPHP. Proposed changes would include the following:

- Revisions to functional zones
- Revisions to the space program
- Update to the projected population
- Revisions to Regents' Resolution
- Update to Greenhouse Gas Reduction Strategy

Revised Functional Zones

Each primary campus site identified in the 2014 LRDP includes a functional zone map reflecting the plans for predominant land uses. The 2014 LRDP Parnassus Heights functional zone map identifies land use zones for clinical, research, support, housing and parking uses. The functional zone map would be amended to be consistent with the districts proposed in the CPHP. **Figure 3-20** presents the updated proposed functional zones at the Parnassus Heights campus site. **Figure 3-21** illustrates areas of functional zone modifications under CPHP. As shown in Figure 3-21, the proposed location for the West Side housing under the CPHP that is currently designated as Research functional zone would be changed to a Housing functional zone. The proposed location for the RAB (on the site currently occupied by UC Hall) would be changed from Housing functional zone to Research functional zone. The proposed location for the childcare facility under the CPHP (on the site currently occupied by the Proctor building) would be changed from a Housing functional zone to Support functional zone. It is preliminarily estimated that approximately 0.15 acres[8] of the Reserve would be changed from Open Space Reserve to a Clinical functional zone to accommodate the proposed New Hospital. In addition, an approximate 0.40-acre of undeveloped land within the Surge/Woods parking area would be redesignated from Support to Open Space Reserve.

Revised Space Program

The 2014 LRDP space program for Parnassus Heights would be updated to reflect the space program proposed under the CPHP. **Table 3-2**, below, summarizes: 1) the total Parnassus Heights campus site space developed as of 2014 (i.e., at the time of preparation of the 2014 LRDP and associated FEIR), 2) the future space program buildout (in horizon year 2035) approved for the campus site in the 2014 LRDP and analyzed in the associated FEIR, 3) the existing (2019) space developed at the campus site, and 4) the future space program buildout (in horizon year 2050) under the proposed LRDP amendment.

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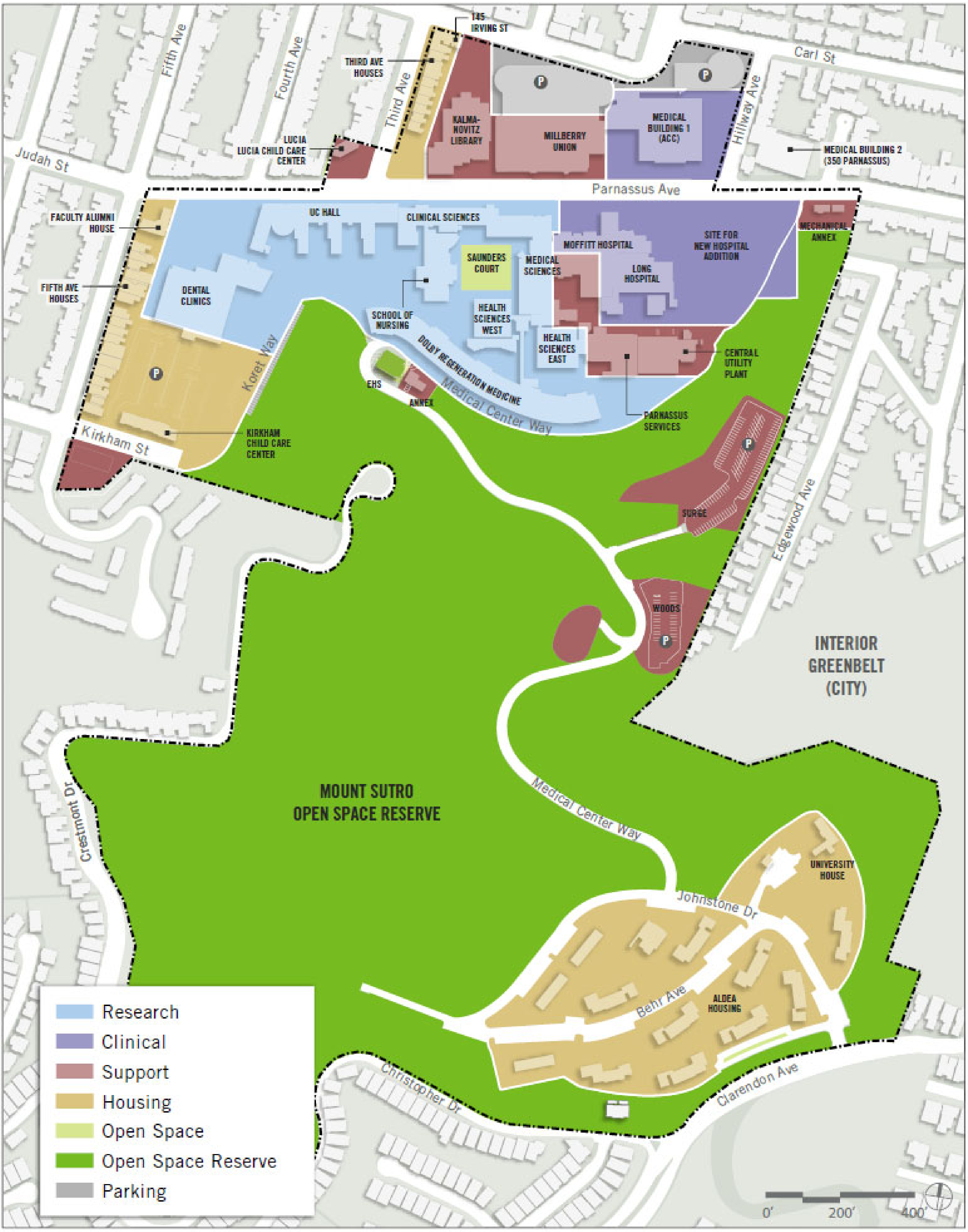
[7] The prior five amendments to the 2014 LRDP are as follows: Amendment No. 1 revised the functional zone map for the Mission Bay campus site; Amendment No. 2 was for Mission Bay East Campus Phase 1 Building; Amendment No. 3 was for the Child, Teen, and Family Center and Department of Psychiatry Building at 2130 Third Street; Amendment No. 4 was for the Minnesota Street Graduate Student and Trainee Housing; and Amendment No. 5 was for the 2130 Post Street Faculty Housing Retrofit.

[8] Excluding the widening of Medical Center Way adjacent to the proposed New Hospital, which would be necessary for safety purposes. The amount of acreage for the widening of Medical Center Way is to be determined.



🟦	Research
🟪	Clinical
🟥	Support
🟨	Housing
🟩	Open Space
🟩	Open Space Reserve
⬜	Parking

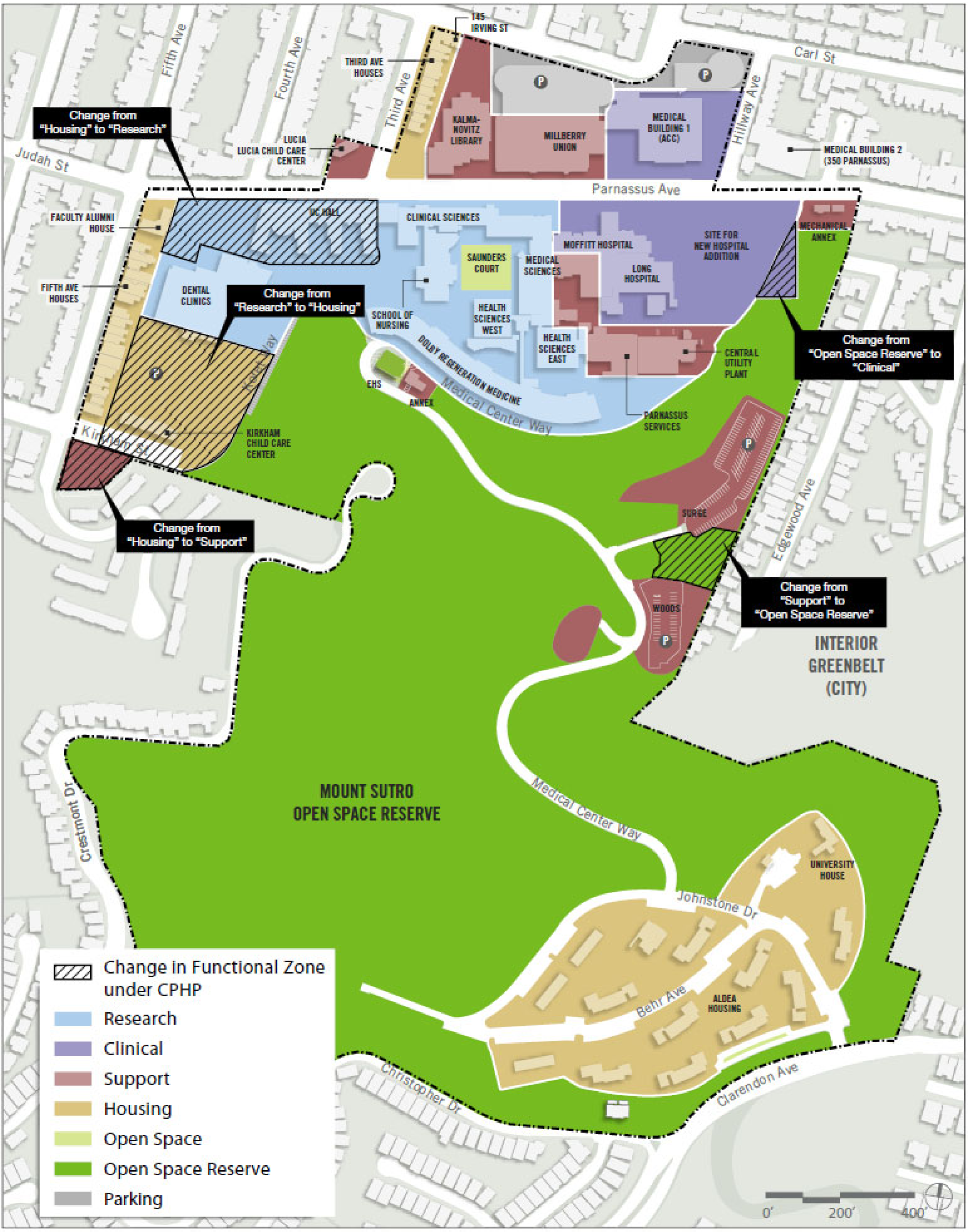
SFO/D190291.00 - UCSF CPHP EIR2. Graphics/Illustrator

SOURCE: UCSF, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 3-20
Proposed Functional Zones at Parnassus Heights Campus Site

ESA



SFO/D190291.00 - UCSF CPHP EIR2. Graphics/Illustrator

SOURCE: UCSF, 2020

Figure 3-21
Areas of Functional Zone Modifications under CPHP

As shown in Table 3-2, the LRDP amendment would increase the future buildout space program at Parnassus Heights from the currently approved 3.61 million gsf (excluding housing) in horizon year 2035 to approximately 5.05 million gsf (excluding housing) in horizon year 2050, a net increase of approximately 1.44 million gsf. When compared to the existing (2019) space developed at the campus site (approximately 3.68 million gsf, excluding housing), the proposed LRDP amendment would result in a net increase in the space program by approximately 1.37 million gsf (excluding housing) by 2050 (approximately 74 percent of which would occur in the Initial Phase).

TABLE 3-2
PARNASSUS HEIGHTS CAMPUS SITE EXISTING AND PROJECTED SPACE PROGRAM (GSF)

Type of Space	2014 Total gsf	2014 LRDP Horizon 2035 Total gsf	Existing (2019) Total gsf	Proposed LRDP Amendment Horizon 2050 Total gsf
Instruction	318,600	280,100	290,300	290,300
Research	802,200	711,200	709,800	1,018,700
Clinical	950,500	1,051,300	1,030,800	1,872,700
Support				
Academic Support	217,500	215,000	193,800	193,800
Academic/Campus Admin	471,200	414,500	438,300	524,400
Campus Community	146,800	140,900	145,500	170,500
Logistics	144,700	138,800	107,400	150,900
Support Subtotal	980,200	909,200	885,000	1,039,600
Structured Parking	653,700	653,700	653,700	719,700
Vacant/Alteration	8,000	6,000	109,000	109,000
Housing	242,000	510,900	241,900	915,300
Total with Housing	**3,955,200**	**4,122,400**	**3,920,500**	**5,965,300**
Total without Housing	**3,713,200**	**3,611,500**	**3,678,600**	**5,050,000**

SOURCE: UCSF, 2019

Updated Population Projections

Detailed population projections are not provided in the 2014 LRDP by campus site, however, they were included in the 2014 LRDP FEIR for purposes of analysis of environmental effects. **Table 3-3**, below, summarizes: 1) the average daily population at the Parnassus Heights campus site as of 2013 (i.e., at the time of preparation of the 2014 LRDP and associated FEIR), 2) the future average daily population at buildout (horizon year 2035) of the 2014 LRDP and analyzed in the associated FEIR, 3) the existing (2018) average daily population at the campus site, and 4) the future average daily population at buildout (horizon year 2050) under the proposed LRDP amendment. It should be noted that estimated population projections are based on no changes to telecommuting, telehealth, and other remotely-conducted operations and services, and therefore are considered conservative.

TABLE 3-3
PARNASSUS HEIGHTS CAMPUS SITE EXISTING AND PROJECTED AVERAGE DAILY POPULATION

	2013 Population	Projected Population at 2014 LRDP Horizon 2035	Existing (2018) Population	Proposed LRDP Amendment Projected Population at Horizon 2050
Students	3,503	4,133	3,683	4,187
Faculty and Staff	8,323	8,268	7,395	12,075
Patients	2,572	2,685	2,984	3,810
Visitors	3,549	3,462	3,375	5,221
Total	**17,947**	**18,547**	**17,438**	**25,293**

SOURCE: UCSF, 2019

As shown in Table 3-3, the LRDP amendment would result in an increase in the estimated average daily population from approximately 18,500 in horizon year 2035 to about 25,300 in horizon year 2050, a net increase of approximately 6,800. When compared to the existing (2018) average daily population at the campus site (approximately 17,400), the proposed LRDP amendment would result in a net increase in the average daily population of nearly 7,900 persons by 2050.

As discussed above, while the UCSF 2014 LRDP addressed development at the entire UCSF campus over an approximate 20-year period, or an approximate horizon year of 2035, the CPHP is anticipated to guide the development of the Parnassus Heights campus site for the next 30 years, or an approximate horizon year of 2050. Nevertheless, all other UCSF campus sites addressed by the UCSF 2014 LRDP would continue to have an approximate horizon year of 2035.

Revisions to Planning Agreements

Regents' Resolution

In the 1976 Regents' Resolution,[9] which was adopted to address potential impacts associated with development of the Parnassus Heights campus site, the Regents designated the Mount Sutro Open Space Reserve as a permanent open space;[10] defined campus boundaries to prohibit further property acquisition (by purchase, condemnation or gift) and leasing of private residential properties outside this area by UCSF; directed that the houses acquired and occupied by UCSF on Third Avenue, Fifth Avenue, Parnassus Avenue, Irving Street, and Kirkham Street be returned to residential use, and that some be sold; and adopted a limit on the amount of built space of 3.55 million gsf, commonly referred to as the "space ceiling," within the newly designated campus site boundaries. At that time, the space ceiling applied to all building space, including

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[9] The 1976 Regents' Resolution" refers to the action taken by the Regents entitled "Designation of Open Space Reserve, Alteration of Campus Boundaries, Commitment of Houses to Residential Use, Authorization to Negotiate Sale of Properties, and Commitment to Transportation Studies, San Francisco."

[10] The Reserve on Mount Sutro was designated as open space for a 25-year period by the Regents in 1975. In the 1976 Regents' Resolution, the Regents increased the Mount Sutro Open Space Reserve from 52 acres to 58 acres and made the open space designation permanent. The 1996 LRDP updated the boundaries of the Reserve to reflect the results of a survey which found that the Reserve contained an additional three acres, for a total of 61 acres.

parking structures, but excluding residential uses in UCSF buildings on Third, Fourth, Fifth, and Parnassus Avenues and Kirkham and Irving Streets.

The 2014 LRDP revised the Regents’ Resolution to exclude other residential square footage within the campus site from the space ceiling (i.e., Aldea Housing and University House). At the time of adoption of the 2014 LRDP, Parnassus Heights contained approximately 3.84 million gsf of space subject to the space ceiling, approximately 294,800 gsf or 8.3 percent above the space ceiling limit. The 2014 LRDP identified strategies to reduce the space ceiling overage over the life of the 2014 LRDP. Currently, excluding housing, Parnassus Heights contains approximately 3.68 million gsf of space, approximately 128,600 gsf or 3.6 percent above the space ceiling limit.

The 1976 Regents’ Resolution also recognized the principle of limiting the average daily population at Parnassus Heights to be substantially in accordance with the level projected in the 1976 LRDP EIR (13,400 persons). The 1982 LRDP limited use of the campus site to purely academic and clinical functions and called for the relocation of most campus-wide administrative functions to other sites that subsequently had to be purchased or leased. The 1996 LRDP established a new goal to limit the average daily population to 16,000 persons. At the time of adoption of the 2014 LRDP, the average daily population at Parnassus Heights was estimated at approximately 17,950 persons. Currently, the average daily population at Parnassus Heights is about 17,440 persons.

UCSF proposes to ask the Regents to update the Regents’ Resolution to:

- Reaffirm continuing commitments, including 1) maintaining the designation of the Mount Sutro Open Space Reserve as permanent open space, potentially including an adjustment to the Reserve boundary while maintaining a minimum of 61 acres in the Reserve; 2) continuing to respect the Parnassus Heights campus boundary established in 1976; and 3) continuing to adhere to the expansion restriction area within which UCSF would not acquire property or lease residential property.
- Increase the space ceiling limit from the current 3.55 million gsf to a proposed 5.05 million gsf, excluding housing (an increase of approximately 1.5 million gsf above the current space ceiling limit) in recognition of the tremendous need for program space at the campus site in order for UCSF to retain its leadership position in patient care, research, and education.

Update to Greenhouse Gas Reduction Strategy

The 2014 LRDP included Appendix E: UCSF Greenhouse Gas Reduction Strategy (GHGRS) to ensure that the LRDP is implemented in alignment with UC Sustainable Practices Policy, and to fulfill the GHG reduction requirements of the State of California Assembly Bill 32 (AB 32): the California Global Warming Solutions Act of 2006. Since the adoption of the 2014 LRDP by the Regents, the University of California Office of the President further identified a UC policy goal to reach climate neutrality from Scopes 1 and 2 sources by 2025. Proposed LRDP Amendment No. 6 includes an update to the GHGRS which incorporates emissions generated by CPHP construction and operations.

3.8 References

UCSF, 2014a. *UCSF 2014 Long Range Development Plan*. November.

UCSF, 2014b. *UCSF 2014 Long Range Development Plan Final EIR*. November.

UCSF, 2019. *University of California San Francisco Comprehensive Parnassus Heights Plan, Final Report*. October 2019, as amended in June 2020.

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CHAPTER 4

Environmental Setting, Impacts, and Mitigation Measures

4.0 Introduction to Environmental Analysis

This chapter describes the environmental setting, assesses impacts, and identifies measures that would avoid or lessen the severity of the significant impacts of the proposed CPHP. This section, Section 4.0, Introduction to the Environmental Analysis, outlines the issues analyzed in this chapter, describes the overall approach to the impact analysis, explains the significance determinations and terminology used in the impact analysis, and provides the basis for the cumulative impact analysis.

4.0.1 Definition of Terms Used in the EIR

This EIR uses a number of terms that have specific meaning under CEQA. Among the most important of the terms used in the EIR are those that refer to the significance of environmental impacts. The following terms are used to describe environmental effects of the proposed CPHP:

- **Significance Criteria:** The criteria used by UCSF, as lead agency under CEQA, to determine whether the magnitude of an adverse, physical, environmental impact would be considered significant. In determining the level of significance, the analysis recognizes that the proposed CPHP must comply with relevant and applicable federal, State, regional and/or local regulations and ordinances which are regularly enforced through building codes and standards and/or other means.
- **Significant Impact:** An impact is considered significant if any of the proposed projects implementing the CPHP *could* result in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of a project-related or cumulative physical change from baseline conditions, compared to a specified significance criterion. A significant impact is defined as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."[1]
- **Less-than-Significant Impact:** An impact is considered less than significant when the impact caused by a proposed project implementing the CPHP would not exceed the applicable significance criterion.
- **Less-than-Significant Impact with Mitigation:** An impact is considered less than significant with mitigation if any of the proposed projects implementing the CPHP could result in a substantial adverse change when evaluated with respect to one or more

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[1] CEQA Guidelines Section 15382.

significance criteria, but feasible mitigation is available that would effectively reduce the impact to a less-than-significant level.

- **Significant and Unavoidable Impact:** Significant impacts resulting from implementation of the CPHP that cannot be feasibly avoided or mitigated to a less-than-significant level, that is, to a magnitude below the applicable significance criterion.
- **Cumulative Impact:** Under CEQA, a cumulative impact refers to "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."[2] A significant cumulative impact is one in which the cumulative adverse physical environmental effect would exceed the applicable significance criterion and the contribution of the proposed project would be "cumulatively considerable."[3] If the contribution of the project to a significant cumulative impact is less than considerable, the cumulative impact is considered less than significant.
- **Mitigation Measure:** A mitigation measure is a feasible action that could be taken that would avoid or reduce the magnitude of a significant impact. Section 15370 of the CEQA Guidelines defines mitigation as:
    a) Avoiding the impact altogether by not taking a certain action or parts of an action;
    b) Minimizing impacts by limiting the degree of magnitude of the action and its implementation;
    c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
    d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
    e) Compensating for the impact by replacing or providing substitute resources or environments.
- **Feasible:** Under CEQA, the term feasible means "means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."[4]

4.0.2 Scope of Analysis

A program EIR has been prepared for the CPHP that discloses the impacts that could result from the approval and implementation of the CPHP and also establishes a framework for tiered or project-level environmental documents that would be prepared in accordance with the overall program. Accordingly, the EIR provides a program-level analysis of the environmental impacts from the development of the entire space program under the CPHP, and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. In addition, this EIR includes project-level analysis for the following CPHP Initial Phase developments: Irving Street Arrival, RAB, and initial Aldea Housing Densification; and certain other Initial Phase improvements (e.g., utility improvements, Parnassus Avenue Streetscape Plan, building renovations of existing buildings, and community investments). The analysis of these Initial Phase development proposals at the project-level is intended to provide sufficient detail to permit project approval and implementation

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[2] CEQA Guidelines Section 15355.

[3] CEQA Guidelines Section 15130(a).

[4] CEQA Guidelines Section 15364.

following certification of the CPHP Final EIR. The fourth CPHP Initial Phase project – the proposed New Hospital – is analyzed at a program level in this EIR, but because it represents a major project for UCSF, it will undergo additional project-level environmental review separately from the CPHP when more details become available. However, this EIR includes certain project-level analysis of the New Hospital where appropriate (e.g., to disclose overlapping construction-related air quality and noise effects of the New Hospital with the other CPHP Initial Phase projects). Similarly, when details on CPHP Future Phase projects are known, each Future Phase project would be reviewed in light of the CPHP Final EIR to determine the appropriate level of additional environmental review, if any, needed before approval and implementation of the particular project.

It should also be noted that there were a number of projects at the Parnassus Heights campus site that were previously approved under the 2014 LRDP that have not yet been implemented (including demolition of the LPPI, Koret Vision Center, Environmental Health and Safety, Surge, Woods, and Proctor buildings). These projects will be implemented separately from the CPHP based upon the prior analysis and approval, and therefore, they are appropriately considered in the cumulative context in this EIR (see *Cumulative Impact Analysis*, below). An exception to this is the proposed demolition of LPPI, which was recently determined to be eligible for the California Register of Historical Resources. Accordingly, this EIR addresses the potential effect of demolition of the LPPI on historic resources as part of the CPHP (see Section 4.4, *Cultural Resources and Tribal Cultural Resources*).

Analytical Horizon

This EIR evaluates the foreseeable impacts under the proposed CPHP through Year 2050, consistent with UCSF's planning horizon for buildout of development under the proposed CPHP. In the absence of any specific proposal by UCSF at this time for additional development at the Parnassus Heights campus site beyond this planning horizon, 2050 is considered the longest feasible timeframe for analyzing potential environmental impacts in this EIR with any level of reliability. As such, this EIR does not assess potential environmental impacts beyond 2050.

Aesthetics and Parking Analysis

CEQA Statute section 21099(d) states that "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment."[1] Accordingly, aesthetics and parking are not considered in determining if a project has the potential to result in significant environmental effects for projects that meet all of the following three criteria:

a. The project is in a transit priority area;[2]

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[1] Refer to CEQA *Statute s*ection 21099(d)(1).

[2] CEQA *Statute* 21099(a)(7) defines a "transit priority area" as an area within 0.5 mile of an existing or planned major transit stop. A "major transit stop" is defined in CEQA Statute 21064.3 as a site containing any of the following: an existing rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

b. The project is on an infill site;[3] and

c. The project is residential, mixed-use residential, or an employment center.[4]

The proposed project meets each of the above three criteria because it (1) is within a transit priority area, as it is located within one-half mile of the Irving St and Arguello Blvd stop on the N-Judah MUNI line, which has service intervals of 15 minutes or less (2) is located on an infill site, as the campus site is an urban area that has been previously developed; and (3) would substantially meet the definition of an employment center as the campus site includes a variety of commercial uses. Thus, this EIR does not consider aesthetics and the adequacy of parking in determining the significance of project impacts under CEQA.

Nevertheless, the public and decision-makers may be interested in information pertaining to the aesthetic effects of the proposed CPHP, and may desire that such information be provided as part of the environmental review process. Therefore, this EIR provides an assessment of potential aesthetic impacts, and identifies, as feasible, mitigation measures to mitigate potential significant lighting/glare impacts (see Section 4.1).

Effects of the Environment on the Project

In a change since the certification of the 2014 LRDP FEIR, in 2015 the California Supreme Court held that "CEQA generally does not require an analysis of how existing environmental conditions will impact a project's future users or residents." *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 386. The Supreme Court explained that, where existing hazards exist, an agency is only required to analyze the potential impact of such hazards on future residents if the project would exacerbate those existing environmental hazards or conditions. Thus, with respect to such issues as geologic and seismic hazards, exposure to existing levels of air pollution and noise, and the like, CEQA does not require consideration of the effects of bringing a new population into an area where such hazards exist, as long as the project itself would not increase or otherwise affect the conditions that create those hazards.

Economic and Social Effects

Under CEQA, economic and social effects by themselves are not considered to be significant impacts, and are relevant only insofar as they may serve as a link in a chain of cause and effect that may connect the proposed project with a physical environmental effect, or they may be part of the factors considered in determining the significance of a physical environmental effect.[5] In addition, economic and social factors may be considered in the determination of feasibility of a mitigation measure or an alternative to the proposed project.[6] As such, the potential effect of the CPHP on economic and social issues, in and of themselves, such as tax revenues, crime, the cost

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[3] CEQA *Statute* 21099(a)(4) defines an "infill site" as a lot located within an urban area that has been previously developed, or a vacant site where at least 75 percent of the perimeter of the site adjoins, or is *separated* only by an improved public right-of-way from, parcels that are developed with qualified urban uses.

[4] CEQA *Statute* 21099(a)(1) defines an "employment center" as a project located on property zoned for commercial uses with a floor area ratio of no less than 0.75 and located within a transit priority area.

[5] CEQA Guidelines Section 15131.

[6] CEQA Guidelines Section 15364.

of public services, or property values are not part of this EIR. That being said, UCSF may evaluate a wide range of factors, including social or economic effects, in its consideration of the merits of the proposed CPHP.

4.0.3 Organization of the Impact Analysis

Chapter 4 is organized as follows and focuses on the environmental resource topics listed below:

4.1 Aesthetics, Wind, and Shadow
4.2 Air Quality
4.3 Biological Resources
4.4 Cultural Resources
4.5 Energy
4.6 Geology and Soils
4.7 Greenhouse Gas Emissions
4.8 Hazards and Hazardous Materials
4.9 Hydrology and Water Quality
4.10 Land Use and Planning
4.11 Noise and Vibration
4.12 Population and Housing
4.13 Public Services
4.14 Recreation
4.15 Transportation
4.16 Utilities and Service Systems

Each environmental topic discussion includes these main subsections:

- *Environmental Setting*, which includes a description of the existing environmental setting
- *Regulatory Framework*, including relevant University, federal, State, and local laws, regulations, and policies; and
- *Impacts and Mitigation Measures*, which describes the (1) significance criteria; (2) analysis methodology, (3) potential project-specific and cumulative impacts; and (4) proposed feasible measures that would eliminate or reduce the severity of significant project-specific and/or cumulative impacts.

This EIR identifies all environmental impacts with an alpha-numeric designation that corresponds to the environmental resource topic (e.g., Aesthetics impacts are labeled AES, Air Quality impacts are labeled AIR, etc.). The resource identifier is followed by a number that indicates the sequence in which the impact statement occurs within the section. For example, “Impact AES-1” is the first (i.e., “1”) aesthetic impact identified in the EIR. All impact statements are presented in bold text. The significance of the impacts prior to implementation of mitigation measures is stated in parentheses immediately following the impact statement (further discussed below).

Similarly, each mitigation measure is numbered to correspond with the impact that it addresses. Where multiple mitigation measures address a single impact, each mitigation measure is numbered sequentially. For example, “CPHP Mitigation Measure AES-1” would be the first mitigation identified to address the first aesthetic impact (i.e., “Impact AES-1”). All mitigation measure statements are presented in bold text.

Within each environmental resource section, a programmatic analysis of the impacts of the CPHP as a whole is presented first, followed by project-specific impact analysis of the following proposed CPHP Initial Phase projects: Irving Street Arrival, Research and Academic Building, initial Aldea Housing Densification projects, and Initial Phase Improvements[5].

4.0.4 Section Structure

Each environmental resource section follows a set structure, as described below.

Introduction

This subsection summarizes the applicable topic analysis and its relevance to the proposed CPHP.

Existing Environmental Setting

According to Section 15125 of the CEQA Guidelines, an EIR must include a description of the existing physical environmental conditions in the vicinity of the project to provide the "baseline condition" against which project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the Notice of Preparation ("NOP") is published. The NOP for the proposed CPHP was published in January 2020, and the baseline conditions contained in this CPHP EIR are generally taken from this time period. However, the CEQA Guidelines and applicable case law recognize that the date for establishing an environmental baseline cannot always be rigid. Physical environmental conditions may vary over a range of time periods; thus the use of environmental baselines that differ from the date of the NOP may be reasonable and appropriate when conducting the environmental analyses. Some sections rely on a variety of data to establish an applicable baseline, as described in those sections.

Regulatory Framework

The regulatory setting presents relevant information about University, federal, State, regional, and/or local laws, regulations, ordinances, plans, policies and standards that pertain to the environmental resources addressed in each section.

Applicable University documents presented in the Regulatory Framework sections of this EIR include, but are not limited to, the 2014 LRDP, University of California (UC) Policy on Seismic Safety, UC Sustainable Practices Policy, 1976 Regents' Resolution, UCSF Physical Design Framework, and UC Strategic Energy Plan. With respect to the 2014 LRDP, applicable land use objectives are presented, and for informational purposes, relevant Community Planning Principles are also discussed.

Significance Criteria

According to CEQA Guidelines Section 15382, a significant effect on the environment means "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project." Significance criteria are identified for each environmental issue area in each resource section. The environmental criteria and considerations applied to determine the

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[5] Please note that certain project-level analysis of the New Hospital is also included in this EIR where appropriate (e.g., to disclose overlapping construction effects of the New Hospital with the other CPHP Initial Phase projects).

significance of CPHP-related changes in the environment are based on the CEQA Guidelines Appendix G and additional criteria used in the 2014 LRDP FEIR, as applicable. The significance criteria serve as benchmarks for determining if proposed activities or conditions would result in a significant adverse environmental impact when evaluated against the baseline conditions.

Approach to Analysis

Each section describes the analytical methods and key assumptions used to evaluate effects of the proposed CPHP.

Impacts and Mitigation Measures

The EIR evaluates the environmental consequences and potentially significant impacts that would result from implementation of the proposed CPHP. The impacts identified are compared with predetermined significance criteria (discussed above), and classified according to significance categories discussed above.

To the extent the residual impact may still be significant even after implementation of the conditions, laws and regulations, potentially feasible mitigation measures are described which would eliminate or substantially reduce the severity of the impact. The effectiveness of a mitigation measure is determined by evaluating the residual impact remaining after its application. Those impacts meeting or exceeding the impact significance criteria after potentially feasible mitigation measures are incorporated are identified as residual impacts that remain significant and unavoidable. Implementation of more than one mitigation measure may be needed to reduce an impact below a level of significance.

Cumulative Impact Analysis

An analysis of cumulative impacts follows the project-specific impacts and mitigation measures evaluation in each section. A cumulative impact consists of an impact that is created as a result of the combination of the impact of the project evaluated in the EIR together with the impacts from other past, present and reasonably foreseeable projects causing related impacts.[7]

As noted above, where a cumulative impact is significant when compared to baseline conditions, the analysis must address whether the project’s contribution to the significant cumulative impact is “considerable.” If the contribution of the project is considerable, then the EIR must identify potentially feasible measures that could avoid or reduce the magnitude of the project’s contribution to a less-than-considerable level. If the project’s contribution is not considerable, it is considered less than significant and no mitigation for the project’s contribution is required.[8]

The geographic scope of the cumulative impact analysis varies depending upon the specific environmental issue area being analyzed. The geographic scope defines the geographic area within which projects may contribute to a specific cumulative impact. Therefore, past, present,

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[7] CEQA Guidelines Section 15355.

[8] CEQA Guidelines Section 15130(a)(3).

and future reasonably foreseeable projects within the defined geographic area for a given cumulative issue must be considered. The cumulative impact analysis in each technical section includes a description of the cumulative analysis methodology and the geographic or temporal context in which the cumulative impact is analyzed (e.g., the Bay Area Air Basin, other activity concurrent with CPHP construction, etc.).

Consistent with CEQA Guidelines Section 15130(b), the cumulative impact analysis considers the CPHP's effects in combination with the projections contain within previously approved planning documents and forecasting models, including but not limited to the San Francisco General Plan, the San Francisco Transportation Authority (SFCTA) Forecast Model, 2015 Urban Water Management Plan for the City and County of San Francisco, and regional planning documents from the Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District, as well as applicable associated environmental review documents.

In addition, consistent with CEQA Guidelines Section 15130(b), the cumulative impact analysis also considers other known or reasonably foreseeable projects that could combine with potential impacts from implementation of the CPHP within the local geographic area. These include:

- *Cumulative Projects within the Parnassus Heights Campus Site Boundary:* This includes the following:
  - On-going activities associated with implementation of the *UCSF Mount Sutro Open Space Reserve Vegetation Management Plan.*
  - Implementation of projects at the Parnassus Heights campus site that were previously approved under the 2014 LRDP, but not yet implemented. These include, but are not limited to, demolition of the Langley Porter Psychiatric Institute (LPPI)[6], Surge and Proctor buildings; and miscellaneous utility improvements.
- *Off-site Cumulative Projects within the Parnassus Heights Campus Site Vicinity*:
  - 350 Parnassus Avenue, located just outside the campus site boundary, is an office building for which UCSF currently leases approximately 80 percent of space. This building is planned to be seismically retrofitted in 2022.
  - Based on a review of the City of San Francisco's *SF Development Pipeline 2019 Q2,* there were six proposed development projects (larger than two units of construction) located within 0.5-mile of the campus site boundary, including at: 478 Warren Drive (9 accessory dwelling units), 271 Upper Terrace (demolition of two homes, and addition of four new two-units buildings), 1801 Haight Street (new building with 7 dwelling units and ground-floor commercial), 1275-1281 8th Avenue (four new accessory dwelling units), 1950 Page Street (7 units of group housing), 1010 Stanyan Street (four dwelling units).

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[6] With the exception of effects of demolition of LPPI on historic resources, which as previously noted, is addressed in this EIR as part of the CPHP.

4.1 Aesthetics, Wind, and Shadow

This section assesses the potential for campus development under the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant aesthetic, wind, and shadow impacts. This section includes a description of the existing environmental setting as it relates to aesthetics, shadow, and wind; and provides a regulatory framework that discusses applicable University, federal, State, and local regulations. The section presents the significance criteria used to evaluate impacts on aesthetics, shadow and wind, and the results of the impact assessment, including any significant impacts and associated mitigation measures.

The analysis included in this section was developed based on the CPHP project description, reconnaissance visits to the campus site and vicinity on June 21, 2019 and April 14, 2020, computer-generated visual simulations, a shade and shadow study prepared by Prevision Design, and a wind study prepared by Cermak Peterka Peterson (CPP). Photographs are also included in this section to supplement the description of publicly-accessible views and analysis of visual character.

4.1.1 Environmental Setting

The 107-acre campus occupies the central portion of the City in the Inner Sunset neighborhood (see Chapter 3, *Project Description*, Figures 3-1 to 3-4). The campus site is bounded by Carl and Irving Streets to the north; Third Avenue and Fifth Avenue to the west; and Clarendon Avenue, Christopher Drive, and Crestmont Drive to the south. The campus site's east boundary abuts the Cole Valley neighborhood and the City's Interior Greenbelt Natural Area.

Scenic Views

Scenic views may be generally described as panoramic vistas of a large geographic area for which the field of view can be wide and extend into the distance. Under CEQA, scenic vistas are those that are experienced from publicly accessible locations and include urban skylines, valleys, mountain ranges, or large bodies of water.

One scenic view from Grandview Park (located approximately 2/3-mile west of the campus site boundary) affords long-range views of the campus site looking east, beyond which the downtown San Francisco skyline, San Francisco Bay, and East Bay hills are visible in the background (see **Figure 4.1-1**). Other scenic views in the vicinity of the campus site include views from the top of Tank Hill (approximately 1/4-mile east of the campus site boundary), and Buena Vista Park and Corona Heights Park (both approximately 2/3-mile northeast of the campus site boundary).

Views from within the Campus Site

Due to the campus site's elevated location (between 300 and 900 feet above sea level), long-range scenic views of the Golden Gate Bridge, Marin Headlands, Golden Gate Park, and the Pacific Ocean are available from certain locations on and adjacent to the campus site. In particular, views of Golden Gate Park and the Golden Gate Bridge are available from the intersection of Third and Parnassus Avenues. Scenic views from within the 61-acre Mount Sutro Open Space Reserve

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-1
View from Grandview Park, Looking East

(Reserve) are generally filtered by vegetation and/or can be obstructed by topography within the Reserve, however, depending on location, the surrounding neighborhoods are still partially visible, including Twin Peaks, Mount Davidson, Ocean Beach, Golden Gate Park, the Presidio, as are the Golden Gate Bridge, Marin Headlands, Mount Tamalpais, and the East Bay hills.

Scenic Resources

The heavily vegetated Reserve occupies the central and south portions of the campus site and supports more than 120 plant species. The Reserve is notable because of its steep topography, rounded peak, and dense forest coverage composed predominantly of eucalyptus trees. These features combine to form a natural refuge from the urban setting that surrounds it. As one of the tallest hills in San Francisco, the Reserve is considered a scenic resource.

Visual Character

The visual character of a city or a part of a city, such as the Parnassus Heights campus site, is comprised of a number of physical elements that in combination form a city’s image. The aesthetic setting of the campus site area is varied. It reflects the visual characteristics of its natural and built elements, including topography, street grid, buildings (individually and collectively), parks and public open spaces, and transportation infrastructure.

Topography

The topography on the campus site is varied, with slopes generally rising from north to south through the majority of the site. The lowest elevation of the campus site is at the north campus site boundary on Irving Street (approximately 300 feet), and the highest elevation is greater than 900 feet on Mount Sutro in the south portion of the campus site, declining to approximately 700 feet along the campus site south boundary at Clarendon Avenue. Due to steep slopes, the developed portion of the campus site is mostly limited to the lower slope and shelf of Mount Sutro. Other smaller-scale campus site structures are located in the Reserve, although largely hidden from view in the heavily wooded areas on the slopes of Mount Sutro.

Street Grid and Block Pattern

Streets within the vicinity of the north portion of the campus site, where the majority of the campus site's development is located, break the conventional perpendicular street grid pattern characteristic of the Inner Sunset neighborhood. Parnassus Avenue runs east-west through the campus core, bisecting this portion of the campus site. Parnassus Avenue also serves as the southern terminus of Hill Point Avenue, Hillway Avenue, 2nd Avenue, 3rd Avenue, and 4th Avenue. Streets in the Aldea Housing complex located in the southeast portion of the campus site are irregular and follow the sloped topography of this portion of the site.

The character of the public rights-of-way that bisect, or are located adjacent to, the campus site is defined primarily by transit and automobile-related uses. Along Parnassus Avenue, there is one travel lane in each direction, in addition to dedicated turning lanes. Curb-side parking is located on both sides of Parnassus Avenue, except at building entrances.

From the pedestrian perspective, visually, the roadbeds (visual relief) are the open areas between large blocks. The streets' "edges" are the areas dedicated to pedestrian use. These "edges" are narrow; generally 12 feet, and in some cases are non-existent. Along Parnassus Avenue, the street width (excluding sidewalks) is approximately 50 feet, and internal streets within the campus site, such as Medical Center Way and Koret Way, range from approximately 25 to 30 feet wide. The narrower internal campus site streets do not contain sidewalks, which serves to create a tighter urban fabric with less visual relief available from the pedestrian perspective.

Open Spaces

Public open spaces contribute to a neighborhood's identity, serve as visual focal points, and provide visual relief to developed built environments. Within the campus site, public open space is easily accessible. The Reserve is designated by the Regents as permanent open space, and is available for public use. Another important open space feature on the campus site is Saunders Court, located within the interior of the core campus and surrounded by the Medical Sciences Building, Clinical Sciences Building, School of Nursing, and HSIR Tower West.

Outside of the campus site boundary, the City's Interior Greenbelt natural area is located adjacent to the east side of the Reserve. Golden Gate Park, including Kezar Stadium, is located one block (approximately 400 feet) north of the campus site boundary. The aforementioned Grandview

Park, Buena Vista Park, Corona Heights Park and Tank Hill natural area afford panoramic views of the City.

Building Uses and Built Form

The type and distribution of land uses and building types within the campus site contribute to its existing visual character. The campus site is characterized by a collection of hospitals, medical office buildings, laboratories, service buildings, and housing which were constructed between the late 1910s and early 2000s. The CPHP identifies six districts in the developed portions of the campus site as a way of organizing planned land uses in a rational manner based in part on existing land use patterns (see Figure 3-5 in Chapter 3, *Project Description*). The descriptions below summarize the existing aesthetic attributes of the areas within the six districts. It is noted that, as depicted in Figure 3-5, the districts are not separated by hard borders, but rather, there is a gradual transition between districts.

Research and Academic Commons District

The Research and Academic Commons district identified in the CPHP includes the majority of research and educational space on campus. Buildings in this district include the Medical Sciences Building, Health Sciences Instruction and Research (HSIR) Towers, the Regeneration Medicine Building, the Clinical Sciences Building (currently under renovation), the School of Nursing, Koret Vision Center, Dental Clinics, and UC Hall. The slab-like principal (north) façade of the 13-story Medical Sciences Building, built in the mid-1950s, is visually cohesive with the 15-story north façade of Moffitt Hospital (described under *Clinical East End District*, below), although Moffitt's cruciform plan results in the principal façade being set back from Parnassus Avenue. The seven-story Clinical Sciences Building (built in 1933) is adjacent to and west of the Medical Sciences Building, and is currently undergoing a seismic retrofit and renovation to be completed in 2020 (see **Figure 4.1-2**). UC Hall, which was constructed in 1917 and is the second oldest building on the campus site, ranges from six to seven stories.

The older campus site buildings along Parnassus Avenue contrast with the more contemporary Dental Clinics building and Koret Vision Research Building, which are located partially within the West Side district (see description below) in the western portion of the campus site. The Dental Clinics building contains five levels stepping back from Fifth Avenue toward Koret Way to the southeast and also set back from Parnassus Avenue to the north. The Koret Vision Research building, east of the Dental Clinics, contains setbacks above the second and fourth levels.

Also included in the Research and Academic Commons district is the Dolby Regeneration Medicine building. This 660-foot long building was constructed in 2010. Located behind the buildings that face Parnassus Avenue, this building is the southernmost of the major structures in the campus core. The building comprises a series of split-level floors with terraced grass green roofs, generally follows the curving topography of the hillside it is constructed on, and is supported on steel trusses.

SOURCE: ESA, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-2
View of the Clinical Sciences Building (shown under renovation) and Medical Sciences Building within the Research and Academic Commons District, Looking East

North Side Gateway District

The North Side Gateway district identified in the CPHP (see **Figure 4.1-3**) is a prominent node because it is the main arrival point to Parnassus Heights via public transit, as well as via private vehicle and bicycle. Drop-offs to clinics and hospitals occur on Parnassus Avenue. The North Side Gateway district includes the Millberry Union and its parking garage constructed in 1958; the Kalmanovitz Library, a five-story building built in 1990; and low rise housing (along Third Avenue). The North Side Gateway district is considerably less densely developed than the south side of Parnassus Avenue, and the buildings in this district gradually become shorter toward the western edge of the campus site. The Millberry Union parking structure located along Irving Street (but with vehicular access from both Irving and Parnassus Avenues) creates a podium upon which the Millberry Union sits.

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-3
View of the North Side Gateway District, Looking South

Clinical East End District

The Clinical East End district identified in the CPHP comprises major clinical facilities, such as Moffitt and Long Hospitals, the Langley Porter Psychiatric Institute (LPPI), and Medical Building 1 and its parking structure (**Figure 4.1-4** shows a view of LPPI and the adjacent hospitals). Moffitt Hospital and Long Hospitals are the largest and most visually prominent buildings on the campus site, rising to a height of 15 stories. The presence of Moffitt Hospital (along with the aforementioned Medical Sciences Building, Clinical Sciences Building and UC Hall) creates a solid street wall along Parnassus Avenue that screen views of other campus site development located behind (e.g., Long Hospital, the HSIR Towers, and the School of Nursing building).

Medical Building 1, built in 1972, is a concrete building at 400 Parnassus Avenue, on the north side of Parnassus Avenue, and features a square tower and sits on a six-story parking structure. In total, the building is nine stories tall.

SOURCE: ESA, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-4
View of the Clinical East End District, Looking South

West Side District

The West Side district identified in the CPHP includes the Kirkham Child Care Center, the Proctor building, housing (along Fifth Avenue), and the West Side surface parking lot (see **Figure 4.1-5**). The Kirkham Child Care Center is a three-story contemporary building set back behind residential uses along Fifth Avenue, and the Proctor Building is a two-story wood frame, “L”-shaped building constructed in 1956. Due to the separation caused by the West Side parking lot from the rest of the campus site, this district is not visually cohesive.

SOURCE: ESA, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-5
View of the West Side Parking Lot and Kirkham Child Care Center, Looking Southwest

Service Corridor District

The Service Corridor district identified in the CPHP generally contains the back-of-house functions that serve the buildings on the south side of Parnassus Avenue, including loading and deliveries, maintenance vehicle parking, and services to the Central Utility Plant, among other functions. The Service Corridor district is generally hidden from public view from Parnassus Avenue, and does not have a distinct or cohesive feel because it traverses a variety of buildings constructed during different eras of the campus site's development (see **Figure 4.1-6**).

SOURCE: ESA, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-6
View of the Service Corridor District,
Looking West

Aldea District

The Aldea district identified in the CPHP consists of a student housing complex constructed between 1960 and the late 1990s. The housing complex contains 12 three-story apartment buildings and a community center. The Chancellor's residence (University House) is located adjacent to the housing complex These buildings blend in with the steep, wooded slopes of Mount Sutro (see **Figure 4.1-7**). Off-site views of the Aldea Housing complex are generally only visible from close-range because of its densely vegetated forest setting. As such, views of the Aldea Housing complex are limited to streets within—and immediately adjacent to—the housing complex.

SOURCE: ESA, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-7
Views of Student Housing in the Aldea District, Looking Southeast

Light and Glare

Sources of light and glare around the campus site include light emitted from building windows, and exterior illuminated signage, street lights and safety lighting. In addition, street lights and motor vehicles can be a source of nighttime light and glare along Parnassus Avenue. These sources of light are typical of those in a developed urban area.

Wind

Data collected at the old San Francisco Federal Building at Civic Center show that average winds speeds in San Francisco are the highest in the summer and lowest in winter. However, the strongest peak wind speeds occur in winter. The highest average wind speeds occur in mid-afternoon and the lowest in the early morning. Westerly to northwesterly winds are the most frequent and strongest winds during all seasons; southwest and west-southwest winds are also relatively prevalent.[1] The wind speed data collected at the old Federal Building that is the basis of San Francisco wind-tunnel testing was collected between 1945 and 1950.[2] This data source is relied upon for all wind analyses conducted in San Francisco as it represents the most complete record of wind speed data within the city limits. These wind data are taken from more than 40 years of record keeping at the Old Federal Building; the longer data set conform with the six years of data used in San Francisco wind tests. As reported in the 2014 LRDP Final EIR, historical wind data collected at Fort Funston, which is upwind of the project site with respect to southwest winds, show that there is reasonable consistency between the Civic Center and the Fort Funston meteorological stations, regardless of their substantially different locations. Similar to Civic Center, the majority of strong winds at Fort Funston were recorded as blowing from the south-southwest through the north-northwest. As also reported in the 2014 LRDP Final EIR, winds approaching the Parnassus Heights campus from the coast lose speed and become more turbulent as they encounter buildings, vegetation, and the ground. Winds that approach the campus from the southwest through the northwest tend to be accelerated as they flow between Mount Sutro and the taller campus buildings along the south side of Parnassus Avenue, as well as along Parnassus Avenue between taller campus buildings to either side of the street.

CEQA review in San Francisco is concerned with wind conditions at pedestrian level in publicly accessible areas, and UCSF similarly evaluates at-grade winds in its environmental documents. The 26-miles-per-hour (mph) wind hazard criterion of San Francisco Planning Code section 148—wind speeds that exceed 26 mph for one full hour of the year—is relied upon for the analysis of significant impacts. Therefore, if a project would cause pedestrian-level wind speeds to exceed 26 mph for a full hour, a project would have a significant wind impact. In general, buildings with a height of less than 80 feet above surrounding structures tend not to result in substantial effects on pedestrian-level winds or to create new exceedances of the hazard criterion. For compliance with section 148 (applicable to downtown San Francisco), projects are also evaluated against a pedestrian comfort criterion, which is a wind speed of 11 mph for pedestrian areas and 7 mph for seating areas, not to be exceeded more than 10 percent of the time.

The wind environment for pedestrians can be adversely affected by buildings that are considerably taller than surrounding structures, particularly where such taller buildings present large planar surfaces towards the prevailing winds. A building that stands alone or is much taller than the surrounding buildings can intercept and redirect winds that might otherwise flow overhead and bring them down the vertical face of the building to ground level, where they create ground-level wind and turbulence (variability in wind speed and pressure). These redirected

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[1] Wind direction is given as the point of origin (i.e., a westerly wind blows from west to east).

[2] Arens, E., et al., "Developing the San Francisco Wind Ordinance and its Guidelines for Compliance," *Building and Environment*, Vol. 24, No. 4, p. 297–303, 1989.

winds, or down-drafts, can be relatively strong and turbulent, and may in some instances be incompatible with the intended uses of nearby ground-level spaces. Conversely, a building with a height that is similar to the heights of surrounding buildings typically would cause little or no additional ground-level wind acceleration and turbulence. Thus, wind impacts are generally caused by large building masses extending substantially above their surroundings, and by buildings oriented so that a large wall catches a prevailing wind, particularly if such a wall includes little or no articulation. Buildings spaced closely together can also result in increased wind speeds at pedestrian level as the winds are channeled between closely spaced structures. However, groups of buildings can interact with and slow approaching winds due to the friction and drag created by the many individual structures, resulting in calmer pedestrian winds at locations sheltered by the groups of buildings.

Westerly winds blowing from the Pacific Ocean encounter surface roughness in the form of buildings, ground, and vegetation, resulting in some slowing of winds at ground level. Winds may also be altered by intervening topography; for example, the project site is offered substantial protection from southwest winds by the mass of Mount Sutro. However, because there are virtually no tall buildings between the ocean and the campus, westerly and northwesterly winds generally flow unimpeded from the ocean to the project site. The existing campus buildings along either side Parnassus Avenue between Fourth Avenue and Hill Point Avenue range in height from about 50 feet to nearly 200 feet, with several structures 100 feet or more in height and with large, relatively unbroken facades. In addition, where large building masses are proximate to Parnassus Avenue on both sides of the street—for example, where the Moffitt-Long Hospital complex is directly across the street from Medical Building 1—these buildings result in channeling of winds that increases wind speeds along both sides of Parnassus Avenue. This location is the publicly accessible area generally subject to the greatest wind speeds on or adjacent to campus, and winds along this portion of Parnassus Avenue can be uncomfortable, particularly on summer afternoons.

Shadow

CEQA review in San Francisco is concerned with the shadow impacts of the proposed project on publicly accessible open spaces and recreation facilities near the project site, and UCSF similarly evaluates shadow impacts in its environmental documents. Therefore, existing publicly accessible open spaces and recreation facilities near the project site that could potentially be affected by the proposed project are described below. The potential extent of shadow impacts of the proposed CPHP is based on a digital shadow analysis prepared by an independent consultant that shows the location of project shadow on existing and planned public open spaces on and near the proposed project at representative times of the year—generally, the solstices and equinoxes to bracket the impacts, along with the day of maximum impact—throughout the day between one hour after sunrise to one hour before sunset (see “Approach to Analysis,” below).

There are a variety of publicly-accessible open spaces on the campus site and in the campus site vicinity that may be affected by shadow from campus development under the CPHP.

On-Site Open Space

On the campus site, the largest publically-accessible open space includes the Reserve (described below), in addition to various smaller open space areas within the campus core that are owned and maintained by UCSF, including Saunders Court.

Mount Sutro Open Space Reserve

The Reserve is a 61-acre open space reserve owned and operated by UCSF that features approximately five-miles of publicly-accessible trails. The Reserve contains winding hiking trails in a densely vegetated forest with shadow cast on the open space primarily by eucalyptus trees up to 100 feet tall.

Off-Site Open Space

In the campus site vicinity, there are a number of parks and publicly-accessible open spaces under the jurisdiction of the San Francisco Recreation and Parks Department (SFRPD). These facilities are protected from shadowing by new structures greater than 40 feet tall under Section 295 of the San Francisco Planning Code (Planning Code).[3] A brief description of these SFRPD facilities, related City facilities under its Shared Schoolyard Project, and shadows currently experienced at these facilities, is provided below.

Golden Gate Park

Golden Gate Park is an approximately 1,000-acre large urban park that contains a variety of amenities including landscaped gardens, aquatic features, playgrounds, museums, stadiums, sports fields, skate parks, and other tourism points of interest. Due to the size of the park and amount of trees, shadow from existing nearby buildings never covers a majority of the park. Shadows from existing buildings cover the most park area on the winter solstice before 9:00 a.m.

Richard Gamble Memorial Park

Richard Gamble Memorial Park is a 0.6-acre park that includes two grass fields connected by a walking trail, trees, and benches. The majority of the park is covered by shadow before 7:00 a.m. and after 7:36 p.m. on the summer solstice, before 8:00 a.m. and after 6:00 p.m. on the fall/spring equinox, and before 9:00 a.m. and after 3:00 p.m. on the winter solstice. This park is popular for informal off-leash dog play activities; however, this park is not among those authorized for off-leash activity by the San Francisco Recreation and Park Department.[4]

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[3] The Planning Department commonly relies upon the hours governed by Planning Code Section 295—from one hour after sunrise to one hour before sunset—in environmental review, separate from Section 295 review, of potential shadow impacts of a project. This is because, during the first hour after sunrise and the last hour before sunset, shadows are very long due to the sun's low position near the horizon, meaning that most of the City is shaded at these times: for example, shadow from a single-story, 20-foot-tall building reaches a length of 250 feet 30 minutes after sunrise on June 21. Moreover, in the first and last hours of sunlight, these very lengthy shadows move more quickly across the ground than do shadows at other times of day. When evaluating the potential for a development to shade a particular open space during the hours subject to Planning Code Section 295, one may initially rule out any location that is more distant than 6.5 times the building height, which is the maximum length of any shadow during the Section 295 period, based on the lowest sun angle (at the winter solstice) at one hour after sunrise and one hour before sunset.

[4] Francisco Recreation and Parks, Dog Play Areas website. Available at http://sfrecpark.org/457/Dog-Play-Areas. Reviewed February 14, 2020.

Grattan Playground

Grattan Playground is a 1.5-acre park that includes two soccer fields, two tennis courts, a basketball court, picnic areas, and a playground. Existing shadows at the Grattan Playground are minimal for most of the year, however, after 6:00 p.m. on the fall/spring equinox, and on the winter solstice before 8:19 a.m. and after 3:53 p.m., the majority of the park is shaded.

Interior Greenbelt

The Interior Greenbelt is a natural area located adjacent to the east side of the Reserve, and includes a two-mile multi-use trail that leads to the Mount Sutro trail network. The trail traverses a densely vegetated forest composed of mainly Eucalyptus trees, which shade the trail throughout the year. As shown in the shade and shadow study prepared by Prevision Design, no portion of the Interior Greenbelt would be affected by shadowing associated with the CPHP, and therefore, this open space is not addressed further in this section as it relates to shadow.

In addition, the following San Francisco Unified School District (SFUSD) public schools participate in the City's Shared Schoolyard Project,[5] which allows for public access to schoolyards on the weekend. Because school open spaces participating in this program function as publicly-accessible open spaces on the weekend, the City requires that shade and shadow impacts on these spaces be analyzed.

Independence High School

Independence High School is a SFUSD public high school and includes an approximately 0.4-acre paved playground featuring a basketball court. There are existing shadows on the paved playground throughout the year early in the morning and in the late afternoon. On the summer solstice, shadows cover a majority of the open space before 7:00 a.m. and again after 6:00 p.m. On the fall/spring equinox, existing shadows cover a majority of the open space before 8.00 a.m., and return to cover a majority of the open space between 5:00 p.m. and sunset. On the winter solstice, existing shadows cover a majority of the open space from sunrise until 9:00 a.m., and return to cover a majority of the open space between 3:00 p.m. to sunset.

Grattan Elementary School

Grattan Elementary School is a SFUSD public elementary school and includes an approximately 0.4-acre paved open area, basketball court, and play structure. Existing buildings in the vicinity cast shadows on the school's open space throughout the year in the early morning between approximately 7:00 to 9:00 a.m. A portion of the open space at this school is not shaded at all daytime hours during the year except on the winter solstice at 3:54 p.m., at which point the open space is fully subsumed by shade from existing buildings.

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[5] The Shared Schoolyard Project is a partnership between the City, the SFUSD, several other City departments, and San Francisco's neighborhoods and communities that opens up schoolyards to the public for recreation and open space on the weekends. Currently, there are over 50 schools citywide are enrolled in the Shared Schoolyard Project.

4.1.2 Regulatory Framework

Federal

There are no federal regulations, applicable to aesthetics, wind, or shadow relevant to the CPHP.

State

State Scenic Highway Program

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to designated scenic highways. The State laws governing the Scenic Highway Program are found in the California Streets and Highways Code, Division 1, Chapter 2, Article 2.5, section 260 et seq. The State Scenic Highway System includes a list of federal and State highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Streets and Highways Code sections 263 through 263.8. A highway may be designated scenic based upon the amount of natural landscape that can be seen by travelers, the scenic quality of the landscape, and the extent to which existing development intrudes upon the traveler's enjoyment of the view (Caltrans, 2020).

UCSF

UCSF 2014 LRDP

The UCSF 2014 LRDP identifies campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP objectives relate to aesthetics, shadow and/or wind:

Campus-Wide Objectives

1. **Respond to City and Community Context**
    - B. Acknowledge and respond to local zoning and height and bulk limitations to the extent possible.
    - C. Design new buildings to be sensitive to the surrounding neighborhood and landscape, taking into account use, scale, potential noise generation, and density.
    - D. Incorporate pedestrian-friendly urban design principles to relate campus buildings to surrounding streetscape and neighborhoods.

While not objectives or regulations, the UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Community Planning Goals for Building and Public Realm Design

BD1. Consider viewsheds of surrounding neighborhoods when designing new buildings.

BD4. Incorporate pedestrian-friendly urban design principles so as to better relate campus buildings to the adjoining streetscape, landscape, public space, and pedestrian realm.

BD5. Present proposed building designs, using 3-D modeling and other visualization techniques, to the public for review and comment at critical milestones.

BD6. Consult with the community in the design of buildings and open space, to ensure that they are complementary to the surrounding neighborhoods while being inspiring, creative, and innovative.

BD9. Conform to the planning and design principles set forth in UCSF's 2007 Physical Design Framework when planning for physical development at UCSF's campus sites. These principles are: respond to context while reinforcing identity; welcome the community; ensure connectivity to and within the campus; improve campus cohesiveness; create spaces to promote collegiality; and lead through conservation and sustainability.

Community Planning Goals for Land Use

LU1. Plan for growth and renovations that are substantially consistent with use limitations and height and bulk limitations in City planning and zoning codes that exist at the time UCSF initiates the site selection process for such growth and renovation projects. The University should consider City planning proposals that are underway. UCSF will endeavor to be consistent with applicable land use plans and mitigation approaches where consistent with UC policy, while respecting specific neighborhood plans and concerns.

With respect to other provisions of the planning and zoning codes, such as off-street parking, UCSF will comply with such provisions or, if unable to comply strictly, will attempt to address impacts of its development with alternative measures, whether physical or operational.

LU3. Ensure that future UCSF development is compatible with physical surroundings in use, scale, and density, and that surrounding land uses do not negatively affect UCSF's activities. Similarly, ensure that UCSF's activities do not negatively affect surrounding land uses.

UCSF's Physical Design Framework

UCSF's Physical Design Framework provides guidance for design consultants retained by UCSF to ensure that future projects enhance the physical environment and will enable UCSF to determine if those designs are consistent with these principles, guidelines and strategies. The six universal planning and design principles that guide physical development at all UCSF-owned campus sites include the following:

- Respond to context while reinforcing identity;
- Welcome the community
- Ensure connectivity to and within the campus;
- Improve campus cohesiveness;
- Create spaces to promote collegiality; and
- Lead through conservation and sustainability.

City of San Francisco

Although the University is constitutionally exempt from local land use regulation when using properties under its control in furtherance of its educational mission, the University strives to be substantially consistent with local policies where feasible.

UCSF consults with the City when planning new development, and obtains approvals, such as encroachment permits, if improvements are proposed within City rights-of-way adjacent to campus sites. In addition, it is UCSF's intent to adhere substantially, to the extent possible, to City zoning codes related to building use, height, and bulk limitations; floor area ratios; and parking requirements or restrictions for the purpose of ensuring compatibility with the surrounding areas.

San Francisco General Plan

The *San Francisco General Plan* provides general policies and objectives to guide land use decisions and includes policies that relate to environmental issues.

Urban Design Element

The Urban Design Element is concerned "both with development and with preservation. It is a concerted effort to recognize the positive attributes of the city, to enhance and conserve those attributes, and to improve the living environment where it is less than satisfactory." The Urban Design Element also seeks to protect public views of open space and water bodies, and to protect and enhance the aesthetic character of San Francisco. The following policies of the Urban Design Element are particularly relevant to the CPHP:

> **Policy 1.1:** Recognize and protect major views in the city, with particular attention to those of open space and water.
>
> **Policy 1.3:** Recognize that buildings, when seen together, produce a total effect that characterizes the city and its districts.
>
> **Policy 1.6:** Make centers of activity more prominent through design of street features and by other means.
>
> **Policy 3.4:** Promote building forms that will respect and improve the integrity of open spaces and other public areas.
>
> **Policy 3.5:** Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development.
>
> **Policy 3.6:** Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction.

The Urban Design Element of the City's General Plan emphasizes the importance of lowrise buildings surrounding large parks at tops of hills to maintain visibility of the park from other areas of the city. The Urban Design Element also states that views from roadways that reveal major destinations or that provide overlooks of important routes and areas of the city assist the traveler in orientation.

The Urban Design Element also includes three maps relevant to the proposed project: "Street Areas Important to Urban Design and Views," "Quality of Street Views," and "Plan to Strengthen City Pattern through Visually Prominent Landscaping." Fourth Avenue (between Irving Street and Parnassus Avenue), Fifth Avenue (between Irving and Kirkham Streets), Sixth Avenue (between Judah and Kirkham Streets), and Stanyan Street, Edgewood Avenue, Woodland Avenue, and Willard Street are described in the City's General Plan as streets providing excellent quality street views. In addition, in the Aldea Housing complex vicinity, Clarendon Avenue is classified as having good to excellent views. In addition, nearby Seventh Avenue and Judah Street are listed as streets that provide views of important buildings. The "Plan to Strengthen City Pattern Through Visually Prominent Landscaping" map identifies four parks in the vicinity of the CPHP (Grandview Park, Tank Hill, Corona Heights Park, and Buena Vista Park) as important vistas to be protected. This map also identifies the Reserve as "Existing Landscaping to be Preserved."

Recreation and Open Space Element

Policy 1.9 from the Recreation and Open Space Element of the San Francisco General Plan states that solar access to public open space should be protected.

San Francisco Planning Code

The Planning Code incorporates by reference the City's zoning maps. The Planning Code also governs permitted uses, densities, and the configuration of buildings in San Francisco.

Use Districts

The campus site is primarily located in the City's P (Public) Zoning District. Housing located along Third and Fifth Avenues is designated as Residential House District, Two-Family (RH-2).

The developed areas of the campus site are located within the following Height and Bulk Districts: 25-X, 40-X, 65-D, 80-D, 130-D, and 220-F. The locations with an "X" designation permit all floors of structures to cover the entire building footprint. The "D" designation limits floor plans above 40 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. The "F" designation limits floor plans above 80 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. See additional discussion of the Planning Code use designations on the campus site in Section 4.10, *Land Use and Planning*.

Shadow

Planning Code Section 101.1/Proposition M

In November 1986, the voters of San Francisco approved Proposition M (the Accountable Planning Initiative), which added section 101.1 to the Planning Code and established eight Priority Policies. These Priority Policies are the basis upon which inconsistencies with the General Plan are resolved. Priority Policy No. 8 calls for the protection of parks and open space and their access to sunlight and vistas.

Planning Code Section 295/Proposition K

In 1984, San Francisco voters approved an initiative known as “Proposition K, The Sunlight Ordinance,” which was codified in 1985 as Planning Code section 295. Section 295 of the Planning Code generally prohibits new structures above 40 feet in height that would cast additional shadows on open space that is under the jurisdiction of the San Francisco Recreation and Park between one hour after sunrise and one hour before sunset, at any time of the year, unless that shadow would not result in a significant adverse impact on the use of the open space. A project that adds new shadow to sidewalks or a public open space, or exceeds the absolute cumulative limit on a section 295 park does not necessarily result in a significant impact under CEQA; the City’s significance criteria used in CEQA review asks whether a project would “create new shadow in a manner that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.”

4.1.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Have a substantial adverse effect on a scenic vista?

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area,[6] would the project conflict with applicable zoning and other regulations governing scenic quality?

d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?

e) Create new shadow in a manner that substantially and adversely affects the use and enjoyment of publicly accessible open spaces?

f) Create wind hazards in publicly accessible areas of substantial pedestrian use?

As discussed in more detail under the *Approach to Analysis* for aesthetics, below, and further in Section 4.0, *Introduction to Environmental Analysis,* pursuant to CEQA Section 21099(d)), this EIR does not consider aesthetics in determining the significance of project impacts under CEQA. As a result, an assessment of the CPHP effects against criteria a) through d), above, is presented for informational purposes.

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[6] The campus site qualifies as an “urban area” as defined in CEQA Guidelines section 21094.5 because it is located in an incorporated city.

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topic for the reasons described:

- ***Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.*** A portion of 19th Avenue, between Highway 101 in the Presidio and St. Francis Boulevard, is an eligible state scenic highway. The campus site is 0.85 miles from 19th Avenue and would not affect scenic resources within a state scenic highway. Therefore, this criterion related to scenic resources does not apply and is not addressed further in this section.

Approach to Analysis

Aesthetics

As discussed in further detail in Section 4.0, *Introduction to Environmental Analysis*, the proposed CPHP substantially meets the criteria set forth in CEQA Section 21099(d)). Thus, this EIR does not consider aesthetics and the adequacy of parking in determining the significance of project impacts under CEQA. Nevertheless, the public and decision-makers may be interested in information pertaining to the aesthetic effects of the proposed CPHP, and may desire that such information be provided as part of the environmental review process. Therefore, this EIR provides an assessment of potential aesthetic impacts, and identifies, as feasible, mitigation measures to mitigate potential significant lighting/glare impacts.

The analysis in Impacts AES-1 and AES-2, below, is aided by the visual simulations prepared by Prevision Design in support of the EIR. The visual simulations document views of and through the campus site. A total of 11 visual simulations were prepared from representative locations. These identified viewpoints are publicly accessible observation points from locations that can see or be seen from the campus site. Viewpoints were selected by UCSF and represent (1) typical views from common types of viewing areas, such as public sidewalks near residential areas with exposure to the proposed CPHP development; or (2) specific high sensitivity areas such as public parks, scenic viewpoints whose scenic views could be affected by development of the proposed CPHP development. The 11 viewpoints were selected to capture a representative sample of existing views of and from the campus site in terms of both sensitive viewing locations, such as public recreational uses, and publicly accessible views near the campus site.

Digitized photographs and computer modeling techniques were utilized to prepare the visual simulations. The visual simulations are based on a simple massing plan of the proposed CPHP, and not on actual building designs, because detailed building plans of CPHP programmatic development are not yet available. The building massing included in the simulations illustrates rough approximations of the building form, but actual building designs are likely to include features such as setbacks, modulation, and potential variation in the depths of façade planes, and fenestration (windows). Therefore, the visual simulations can be considered a conservative depiction of potential visual changes that would result from the CPHP.

Wind

Potential wind effects of the proposed CPHP were evaluated based on a screening-level analysis prepared in support of this EIR by CPP. The analysis was based on the same simple massing model of the proposed CPHP described above, and not on actual building designs, which have not yet been prepared. In general, the massing model can be considered to generate conservative results, in that the model incorporates little in the way of setbacks on some of the major building components, thereby increasing the ground-level wind speeds that would result, compared to results that would arise from a more likely building scenario that does include setbacks and other building sculpting features, such as podiums.

The screening-level analysis involved computer simulation of wind effects using a tool known as computational wind engineering, a specialized sub-set of computational fluid dynamics. This tool, which entails developing a computer-simulated 3D model of existing and proposed development, is appropriate for planning studies of wind effects because it allows for evaluation of overall wind flows, aiding in identification of potentially problematic wind conditions. The computational analysis provides information regarding wind flows over the entire site, unlike the individual point-based analysis undertaken in a wind tunnel, and thus is able to reliably predict wind comfort conditions across a relatively wide area, such as the Parnassus Heights campus site. Computational wind engineering does not, however, account for turbulence (variation in wind speed and direction) in the same manner as does wind-tunnel testing, which is more appropriate for evaluation of actual specific designs of tall buildings. Moreover, computational analysis cannot identify exceedances of the wind hazard criterion due to its inability to reliably simulate turbulence using currently accepted methods. Therefore, the analysis evaluates compliance with the pedestrian comfort criterion, which generally characterizes wind conditions, although inferences can be drawn concerning potential locations of hazardous wind conditions. However, at the planning level of the CPHP, computational wind engineering is a valid tool for generalized evaluation of potential wind effects.

As noted above, the University is constitutionally exempt from local land use regulation when using properties under its control in furtherance of its educational mission, and therefore UCSF is not subject to the San Francisco Planning Code. However, in the interest of consistency with other wind analyses conducted in San Francisco, UCSF relies upon the San Francisco Planning Code wind hazard threshold of 26 miles per hour (mph) as a significance criterion in its EIRs. Accordingly, the wind hazard criterion of San Francisco Planning Code section 148 (applicable to downtown San Francisco)—wind speeds that exceed 26 mph for one full hour of the year—is relied upon in this EIR for the analysis of significant impacts. UCSF also relies upon the San Francisco Planning Code wind comfort thresholds for informational purposes. Therefore, if a project would cause pedestrian-level wind speeds to exceed 26 mph for a full hour, a project would have a significant wind impact. In general, buildings with a height of less than 80 feet above surrounding structures tend not to result in substantial effects on pedestrian-level winds or to create new exceedances of the hazard criterion. For information as to more general pedestrian comfort, projects are also evaluated against the San Francisco Planning Code pedestrian comfort criteria, which are wind speeds of 11 mph for pedestrian areas and 7 mph for seating areas, not to be exceeded more than 10 percent of the time.

Shadow

The evaluation of potential impacts of the proposed CPHP related to shade and shadow are based on the shade and shadow study prepared in support of this EIR by Prevision Design (refer to **Appendix SHDW**). To evaluate the shadow impacts of the CPHP development, a 3D virtual model of the CPHP program was prepared. The model includes the campus site, potentially affected open spaces, and the surrounding urban environment.

The purpose of this analysis is to inform decision-makers of the potential effects of the proposed CPHP's shadow on existing SFPRD parks and publicly accessible open spaces, and to determine whether or not the CPHP would create new shadow in a manner that would substantially affect the use and enjoyment of these facilities, a significant impact under CEQA.

The shadow model considers the CPHP program at full buildout. Specific architectural designs for the buildings within the campus site are not available at this time. The shadow analysis considers shadow from existing buildings and structures, shadow from the proposed CPHP projects, and discloses the net new shadow that would occur as a result of the CPHP program. The shadow model does not consider shadow from existing trees, because the extent of shadow cast by trees can vary based on the season and because trees can be removed for various reasons.

Shadow Diagrams

In order to provide a visual understanding of the location, size, and extent of the new shading, graphics were prepared to accompany the qualitative analysis. The shadow diagrams graphically depict the movement of project shadows across the project site and surrounding area on four representative days of the year from one hour after sunrise to one hour before sunset:[7] the summer solstice (June 21, the longest day of the year, when the sun is highest in the sky and shadows are the shortest at any given time of day); the spring/autumn equinoxes (March 20/September 22, when the sun's position is nearly identical to the opposite equinox and represent the midway point between the winter and summer solstices); and the winter solstice (December 20, the shortest day of the year, when the sun is lowest in the sky and shadows are the longest at any given time of day).

For each of these days (summer solstice, spring/autumn equinoxes, and winter solstice), this section presents representative shadow diagrams at five times of day: one hour after sunrise; the beginning, middle, and end of the midday period of peak use (10 a.m., 12 p.m., and 3 p.m.); and one hour before sunset. Presenting a series of shadow diagrams from the same day demonstrates how shadow moves across the space and expands and contracts over a specific period of time. They represent a representative range of dates and times, including the time of peak midday use of open space on the longest day of the year, on the equinoxes (when day and night are of approximately equal length), and on the shortest day of the year. From these shadow diagrams, shadow impacts on particular open spaces are described and evaluated.

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[7] The period analyzed is from the first hour after sunrise until the last hour before sunset, because before and after these hours, shadows are extremely long and move very quickly across the ground. Because of this, much of the city other than areas with no buildings or other structures is in shadow during the first and last hours of sunlight. Additionally, use of most open spaces tends to be less intensive early in the morning and later in the day.

Consistent with San Francisco shadow analysis procedures, shadow is shown at the ground plane only, and shadow on existing and proposed rooftops (including the proposed Millberry Terrace) is not depicted. This is because the analytical model was developed to evaluate shadow on public and publicly accessible open spaces, the vast majority of which are at grade. In instances where existing buildings would be demolished and replaced with open space (for example, portions of the proposed Promenade and extension of Fourth Avenue, which would replace part of the Dental Clinics Building) shadow cast on this area would not constitute net new shadow as the ground plane is currently subsumed by a building and does not receive sunlight.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact AES-1: Development under the CPHP would not have a substantial adverse effect on a scenic vista. (Less than Significant)

CPHP

The CPHP would have a significant effect on scenic vistas if it would substantially block or degrade scenic views from public vantage points. Please note that impacts on views from private property are not considered significant effects on the environment. Scenic vistas considered in this analysis include long-range panoramic views of scenic resources.

The CPHP would include changes visible from scenic vistas. The most visible CPHP components, depending on viewpoint, would include certain existing building removal (e.g., UC Hall and School of Nursing), and new building development, including the proposed New Hospital (up to 294 feet[8]), proposed Research and Academic Building (RAB, up to 130 feet in height), proposed improvements at the Millberry Union (up to 90 to 95 feet as measured from Irving Street), proposed West Side development (up to 130 feet), and the proposed hotel for patients and families (up to 35 feet). The CPHP would also result in certain topographic and vegetation changes on the campus site. Development of the New Hospital and associated widening of Medical Center Way may result in a modification of the Reserve boundary, and require excavation, re-grading, and some tree removal in this portion of the Reserve. As discussed in Chapter 3, *Project Description*, UCSF proposes to replace any area of the Reserve acreage that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to or

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[8] Including potential rooftop observation deck and elevator vestibule that would occupy a portion of the roof. As currently conceived, the majority of mechanical equipment would be contained within various levels of the New Hospital to minimize the amount of equipment located on the roof; components of mechanical equipment located on the roof may slightly exceed the 294 feet in height.

greater than that area lost. The CPHP would also notably lower existing ground elevations south of the proposed RAB, and proposed development along the future Fourth Avenue extension would necessitate the removal of an existing grove of redwood trees. Certain other tree removal would be required under the CPHP as a result of construction activities proposed under the CPHP, including other locations adjacent to Medical Center Way, miscellaneous areas of ornamental landscaping within the campus site, and off-site street trees along Parnassus Avenue and/or Irving Street.

As noted above, to analyze the effect on scenic vistas, visual simulations were prepared from a number of publicly accessible vantage points from where the campus site can be seen or from vantage points on the campus site that provide scenic views. The locations and direction of the visual simulations are indicated on **Figure 4.1-8**.

View from Grandview Park

Locations on Grandview Park provide long-range panoramic views of the Pacific Ocean, Golden Gate Park, Marin Headlands, the Presidio, downtown San Francisco, the Mount Sutro Open Space Reserve, and Sutro Tower. As shown in **Figure 4.1-9**, from this viewpoint, new buildings proposed under the CPHP would be noticeable and partially obstruct views of the lower portion of the north slope of Mount Sutro. However, the Reserve would continue to be a prominent scenic resource from this view due to its elevation and visibility from long distance. The introduction of taller buildings within the campus core under the CPHP would only slightly obstruct the existing view of downtown San Francisco from this perspective. Others views from Grandview Park, including of the Pacific Ocean, Golden Gate Park, Marin Headlands and the Presidio would remain unchanged. With implementation of the CPHP, this scenic vista would continue to retain nearly all of the qualities that make it scenic: panoramic long-range views of scenic resources. Therefore, implementation of the CPHP would not result in a substantial adverse impact on scenic vistas as viewed from Grandview Park.

Views from other Prominent Vantage Points

In addition to the view from Grandview Park discussed above, as discussed above under *Regulatory Framework*, the views from Tank Hill natural area, Buena Vista Park, and Corona Heights Park are listed in the Urban Design Element of the San Francisco General Plan as "Important Vista Points to be Protected."

Certain CPHP development, particularly the proposed New Hospital, would be visible from surrounding parks, including the Tank Hill natural area, Buena Vista Park, and Corona Heights Park. Views from these parks are considered scenic as they include panoramic views of San Francisco and the Bay Area. While certain proposed CPHP development may be visible, and particularly the proposed New Hospital given that it would be taller than surrounding development, it would not block existing views of Golden Gate Park or the Golden Gate Bridge from these parks. Views from Tank Hill of the proposed housing in the Aldea Housing complex area in the southeast area of the campus site would be largely screened by intervening vegetation. Moreover, other long-range views from these parks, including those of the Marin Headlands, downtown San Francisco, and the East Bay Hills would not be affected by the CPHP. Therefore, implementation of the CPHP would not result in a substantial adverse impact to these scenic vistas.

SFO/D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2019; Google Earth, 2019; ESA, 2019

Figure 4.1-8
Visual Simulation Viewpoint Map

Existing

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-9
Viewpoint: 1: Visual Simulation of the Parnassus Heights Campus Site with CPHP Development from Grandview Park, Looking East

As discussed in the *Regulatory Framework*, views from certain streets in the vicinity of the campus site are listed in the City's General Plan as having excellent quality street views. These streets include Fourth Avenue (between Irving Street and Parnassus Avenue), Fifth Avenue (between Irving Street and Kirkham Avenue), Sixth Avenue (between Judah and Kirkham Streets), Edgewood Avenue, Willard Street, Woodland Avenue, and Clarendon Avenue.

Along portions of Fourth Avenue, Fifth Avenue, and Sixth Avenue, views toward the north and west afford mid- to long-range scenic views of the Golden Gate Bridge, Golden Gate Park, Marin Headlands, and the Pacific Ocean. The CPHP development would not obstruct views of these scenic resources toward the north and west from these streets.

Vantage points on Edgewood Avenue and Willard Street provide scenic views of the Marin Headlands, Golden Gate Park, the Presidio and the Golden Gate Bridge. Vantage points along Clarendon Avenue provide glimpses of the Bay and downtown San Francisco between residences. New campus site development under the CPHP may obstruct northerly and westerly views of the Marin Headlands or Golden Gate Park from the corner of Edgewood Avenue and Belmont Avenue, but would not obstruct views of downtown San Francisco from any vantage point on Clarendon Avenue or Willard Street.

The proposed demolition of the School of Nursing building and proposed Promenade and expansion of Saunders Court, a publicly-accessible open space, would make available new scenic views from the campus site westward toward the Pacific Ocean. In addition, the proposed Millberry Union terrace would create new views northward through the campus site toward Golden Gate Park, Golden Gate Bridge, and the Marin Headlands.

Therefore, based on the foregoing, the CPHP development would not have a substantial adverse effect on scenic vistas from these vantage points.

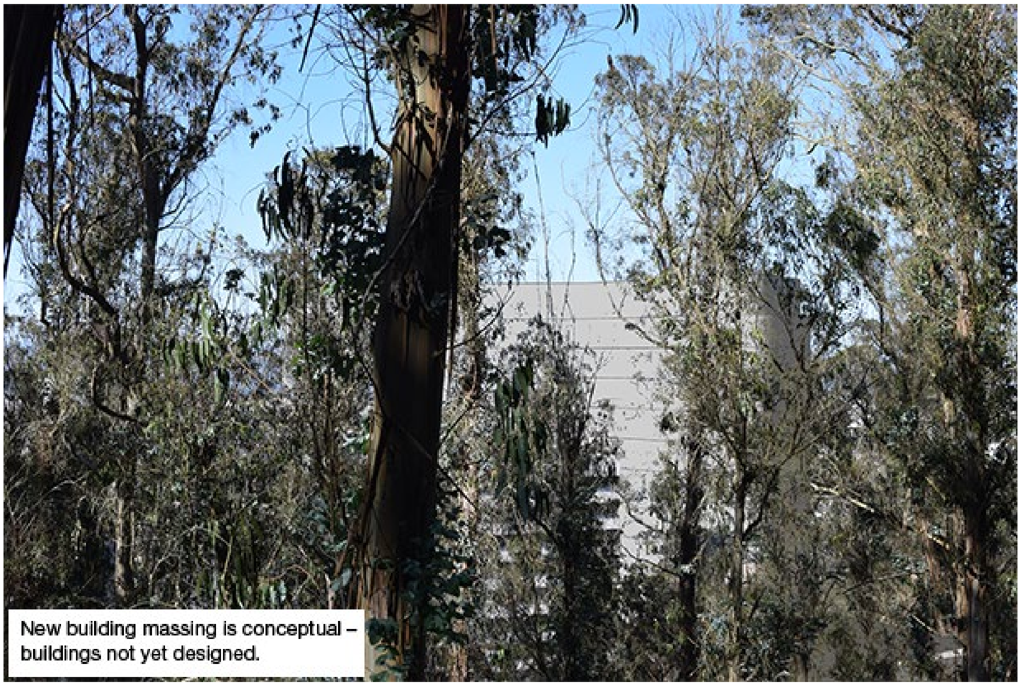
View from the Mount Sutro Open Space Reserve

Figure 4.1-10 shows a visual simulation from the Historic Trail in the Mount Sutro Open Space Reserve, looking north across the campus core toward Golden Gate Park, the San Francisco Bay, and Angel Island. From this vantage point, the proposed New Hospital would be noticeable and would obstruct northward scenic views across the campus core. However, this and other views from within the Reserve are largely obstructed under existing conditions by dense vegetation and/or topography, and, as discussed in the Setting, in general, the Reserve does not provide long range scenic views. As such, implementation of the CPHP would not adversely affect scenic vistas from within the Reserve.

Overall CPHP Impact on Scenic Vistas

The CPHP would introduce new development that would be visible as part of the scenic vistas identified in this analysis, but these scenic vistas would not be substantially or adversely impacted. In addition, the CPHP development would create new scenic views westward toward the Pacific Ocean through removal of the School of Nursing building and creation of new publicly-accessible open space, including proposed Promenade and expansion of Saunders Court. In addition, the proposed Millberry Union terrace would create new views northward through the

Existing



New building massing is conceptual – buildings not yet designed.

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-10
Viewpoint 2: Visual Simulation of the CPHP Development From the Historic Trail in the Mount Sutro Open Space Reserve, Looking North

campus site toward Golden Gate Park, Golden Gate Bridge, and the Marin Headlands. While a portion of the Reserve could be lost to accommodate the New Hospital, which would alter views of the Reserve at this location, UCSF would designate new Reserve area elsewhere on the campus site in an amount equal to or greater than that area lost. Therefore, the CPHP impact on scenic vistas would be less than significant.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As discussed in Chapter 3, *Project Description*, the proposed Irving Street Arrival project would modify the pedestrian entrance portion of the existing Medical Building 1, and add two stories on the Irving Street side (increasing to a total of 8 stories and up to 86 feet in height) and an additional two stories on the Parnassus Avenue side (increasing to a total of three stories and up to 45 feet in height). The proposed RAB project would involve removal of UC Hall and the School of Nursing building, and construct an eight story tall building (up to 130 feet in height) on the site of UC Hall. These improvements would alter views to the south and east, and the RAB would become a prominent feature of the visual landscape.

Scenic views from Fourth Avenue, Fifth Avenue, and Sixth Avenue, between Irving and Kirkham Streets of the Pacific Ocean, Golden Gate Park, downtown San Francisco, and Golden Gate Bridge would not be obstructed by these two Initial Phase projects. Removal of the School of Nursing building and the proposed Promenade and expansion of Saunders Court would create new publicly-accessible open space that would provide scenic westward views through the campus site toward the Pacific Ocean.

The initial Aldea Housing Densification project would substantially increase the height of buildings in the Aldea Housing complex, with development of one five-story building (up to 60 feet in height) and three eight-story buildings (up to 96 feet in height). As discussed above, while it is possible that these buildings may be visible from Tank Hill, it is likely that intervening vegetation would largely obstruct views of this Initial Phase project (surrounding dense vegetation and eucalyptus trees can grow to over 100 feet tall in the Aldea Housing complex). Therefore, the initial Aldea Housing Densification project would not be expected to substantially or adversely affect scenic vistas.

As described in Chapter 3, *Project Description*, the Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. As indicated in Chapter 3, the site of the proposed fuel tank replacement project south of the Central Utility Plant would require limited grading and removal of up 50 to 100 eucalyptus trees on the adjacent hillside. However, this location is largely hidden from view from surrounding public vantage points due to intervening development, and consequently, this utility improvement would not affect scenic vistas. Similarly, the site of the proposed emergency water tank replacement west of the Surge parking lot is heavily screened by existing topography and vegetation within the surrounding Reserve, and consequently, this utility improvement would also not affect scenic vistas from public vantage points. The proposed renovation to HSIR Towers and Medical Sciences Building would not increase the building envelope or heights of these existing buildings, and as such would not adversely affect scenic vistas. Lastly, the proposed Parnassus Avenue Streetscape Plan improvements and community investments would not be of a nature or scale that would have the potential to adversely affect scenic vistas.

Mitigation: None required.

Impact AES-2: Development under the CPHP would occur in an urbanized area and would not conflict with applicable zoning and other regulations governing scenic quality. (Less than Significant)

CPHP

The campus site qualifies as an "urban area" as defined in CEQA Guidelines section 21094.5 because it is located in an incorporated city. Therefore, as discussed above under *Significance Criteria*, the CPHP would have an adverse effect related to scenic quality if it were to conflict with applicable regulations governing scenic quality.

The University is the only agency with land use jurisdiction over programs and projects proposed on the Parnassus Heights campus site. As such, the UCSF 2014 LRDP governs scenic quality at the campus site, and, accordingly, potential conflicts of the CPHP with the 2014 LRDP are used as the basis to determine if the CPHP would have a significant impact related to scenic quality. (Nevertheless, following this assessment, this EIR also presents – for informational purposes – a discussion of the general consistency of the CPHP with other planning documents, including the City of San Francisco General Plan and Planning Code. Please see *Informational Discussion of Consistency with Other Planning Documents*, below.)

To help inform the discussion of CPHP effects on scenic quality, **Figures 4.1-11** through **4.1-19** presented in this impact discussion depict visual simulations of the CPHP development from a number of key vantage points.

UCSF 2014 LRDP

The 2014 LRDP objectives are the policies that guide UCSF's physical development. Of the five overarching 2014 LRDP objectives, "Objective 1. "Respond to the City and Community Context" contains three sub-objectives that relate to scenic quality. These include the following:

1B. Acknowledge and respond to local zoning and height and bulk limitations to the extent possible;

1C. Design new buildings to be sensitive to the surrounding neighborhood and landscape, taking into account use, scale, potential noise generation, and density; and

1D. Incorporate pedestrian-friendly urban design principles to relate to campus buildings to surrounding streetscape and neighborhoods.

UCSF's proposed LRDP Amendment would clarify that sub-objectives 1B and 1C would not apply to the New Hospital project, in recognition of the substantial amount of space required for the New Hospital, although UCSF would make efforts during the design process to come as close as possible to meeting these objectives, if feasible.

2014 LRDP Sub-objective 1B

As shown in **Figures 4.1-11** and **4.1-12**, implementation of the CPHP program would result in generally taller buildings and an increase in building mass across the developed areas of the campus site. With regard to 2014 LRDP sub-objective 1B, local zoning and height and bulk limitations would be those contained in the San Francisco Zoning Map. Certain uses under the proposed CPHP would be inconsistent with the San Francisco Zoning Map designations related to height and bulk. The proposed New Hospital (up to 294 feet) would exceed the height limits of the City's 65-D, 220-F Height and Bulk Districts, and, along with the proposed widening of Medical Center Way, could encroach within the City's OS Height and Bulk District. In addition, certain portions of the proposed West Side development (up to 130 feet in height) would exceed the height limits of the City's 40-X Height and Bulk District and encroach within the City's OS Height and Bulk District); and the proposed Aldea Housing Densification project (up to 96 feet in height) would exceed the height of the City's 40-X Height and Bulk District limit. Therefore, in these respects, the CPHP would not fully align with sub-objective 1B. Other height exceedances of the City's Zoning Code by development proposed under the CPHP, including the proposed Millberry Union Towers (up to 90 to 95 feet as measured from Irving Street) and Irving Street Arrival (up to 86 feet as measured from Irving Street), which would nominally exceed the height limit of the City's 80-D Height and Bulk District (by between about 8 and 19 percent).

2014 LRDP Sub-objective 1C

Regarding 2014 LRDP sub-objective 1C, and specifically with respect to the issue of use, the CPHP proposes a range of clinical, research, educational, and residential uses that are consistent with those land use types that currently exist at the campus site. The proposed CPHP districts would also further organize these land uses in a rational manner based in part on existing land use patterns. As such, from a use perspective, the proposed CPHP would be generally consistent with the surrounding neighborhood.

Specifically, with respect to scale and density, implementation of the CPHP program would result in a substantial increase in development, and associated increase in the scale and density, on the campus site. The multi-family housing proposed in the West Side district under the CPHP would be broken into several individual buildings located along the proposed 4th Avenue extension, and these buildings would step down in height from east to west along the lower slope of the Mount Sutro as they approach existing adjacent residential housing to the west. This would serve to reduce the effect of height and mass differences of the proposed housing with neighboring land uses (see **Figure 4.1-13**). Other notable proposed taller and larger-scale CPHP development, such as the proposed RAB and Millberry Union Towers, would be comparatively more centrally-located within the campus core and alongside other taller and prominent existing development on Parnassus Avenue, which would minimize the effects of height and scale of these uses with the surrounding neighborhood.

Existing

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-11
Viewpoint: 3: Visual Simulation of the Parnassus Heights Campus Site with CPHP Development from Seventh Avenue and Judah Street, Looking East

Existing

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-12
Viewpoint 4: Visual Simulation of the Parnassus Heights Campus Site with CPHP Development from Kezar Triangle, Looking South

Existing

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-13
Viewpoint 5: Visual Simulation of the Parnassus Heights Campus Site with CPHP Development from Kirkham Street Between 5th and 6th Avenues, Looking East

The proposed Aldea Housing Densification on the southeast side of the campus site would also be noticeably taller and larger in scale than the existing Aldea Housing buildings it would replace, and the existing housing in the adjacent neighborhood to the south. However, the new Aldea Housing structures would be developed in generally the same building footprints as the existing Aldea Housing buildings, and thus, would continue to maintain existing setbacks from off-site residential uses, and benefit from visual screening provided by the tree cover in the Aldea Housing complex.

As shown in Figure 4.1-12, and **Figures 4.1-14** to **4.1-18**, the New Hospital proposed in the Clinical East End would be the most noticeable visual change under the CPHP program. The New Hospital would contrast sharply both in height and scale with the existing residential development to the east, which is limited to 40 feet in height. The proposed New Hospital would also be nearly 100 feet taller than other existing buildings on the campus site (adjacent Moffitt Hospital is currently the tallest building at 197 feet). In addition, the proposed New Hospital would be a prominent newly visible feature in the viewsheds from nearby neighborhoods, such as those along Parnassus Avenue (see Figure 4.1-16), 17th Street (see Figure 4.1-17), and Willard Street at Belmont Avenue (see Figure 4.1-18).

As such, while CPHP development proposed in the central and west areas of the campus core, and in the Aldea Housing complex, would, on balance, be generally consistent with 2014 LRDP sub-objective 1C, the height and scale of the proposed New Hospital would be inconsistent with 2014 LRDP sub-objective 1C.

With respect to sensitivity to the surrounding landscape as set forth in 2014 LRDP sub-objective 1C, the proposed New Hospital and widening of the Medical Center Way could encroach into the hillside in the Reserve to the east and require tree removal and regrading in this area. As discussed in Chapter 3, Project Description, UCSF proposes to replace any area of the Reserve lost due to new development under the CPHP by designating a new area elsewhere on the campus site as Reserve in an amount equal to or greater than that area lost. Other notable landscape alteration on the campus site under the CPHP would include the removal of an existing grove of redwood trees adjacent to UC Hall. Certain other tree removal would be required under the CPHP as a result of construction activities proposed under the CPHP, including other locations adjacent to Medical Center Way, miscellaneous areas of ornamental landscaping within the campus core, and street trees along Parnassus Avenue and/or Irving Street. However, as discussed in the Project Description, UCSF would also provide a net increase of 3.9 acres of publically accessible open space within the campus core over existing conditions, including an expanded Promenade and Saunders Court, which would serve to minimize effects of loss of existing landscaping elsewhere under the CPHP.

Specifically with respect to the extent this sub-objective concerns noise generation, as addressed in Section 4.11, *Noise and Vibration*, with mitigation, new buildings developed under the CPHP would result in a less-than-significant effect on ambient noise levels pursuant to applicable noise standards.

Existing

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-14
Viewpoint 6: Visual Simulation of the Parnassus Heights Campus Site with CPHP Development from Lincoln Way and Arguello Boulevard, Looking South

Existing

New building massing is conceptual – buildings not yet designed.

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-15

Viewpoint 7: Visual Simulation of the Parnassus Heights Campus Site with CPHP Development from 3rd Avenue and Parnassus Avenue, Looking East

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-16
Viewpoint 8: Visual Simulation of the Proposed CPHP New Hospital from Parnassus Avenue and Willard Street, Looking West

Existing

New building massing is conceptual – buildings not yet designed.

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-17
Viewpoint 9: Visual Simulation of the Proposed CPHP New Hospital from 17th Street and Clayton Street, Looking West

Existing

New building massing is conceptual – buildings not yet designed.

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-18
Viewpoint 10: Visual Simulation of the Proposed New Hospital From Willard Street and Belmont Avenue, looking West

2014 LRDP Sub-objective 1D

Regarding 2014 LRDP sub-objective 1D, proposed new buildings along Parnassus Avenue would be constructed concurrent with the proposed Parnassus Avenue Streetscape Plan, which includes pedestrian improvements intended to make street crossings safer and more convenient, the creation of more usable outdoor space as well as visual design elements to strengthen the identity of UCSF at the campus site, and enhance the public realm. Improvements would include new paving, street furniture, lighting and street trees, sidewalk and crosswalk widening and more defined campus gateways at either end of the street. These improvements would serve to enhance the public realm as called for in UCSF's Physical Design Framework, and would be consistent with 2014 LRDP sub-objective 1D.

Overall CPHP Impact on Scenic Quality

To the extent the CPHP would be inconsistent with applicable 2014 LRDP objectives as described above, UCSF would seek amendments to the 2014 LRDP to bring the CPHP and 2014 LRDP into conformity. In particular, the 2014 LRDP would be amended clarify that sub-objectives 1B and 1C would not apply to the New Hospital project, in recognition of the substantial amount of space required for the New Hospital, although UCSF would make efforts during the design process to come as close as possible to meeting these objectives, if feasible. Therefore, because the CPHP includes provisions regarding scenic quality that would apply broadly to the CPHP based on UCSF's Physical Design Framework, with amendments to the 2014 LRDP, the CPHP would not conflict with the 2014 LRDP objectives related to scenic quality. This impact would be less than significant.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project would add two stories on the Irving Street side (increasing to a total of 8 stories and up to 86 feet in height) and an additional two stories on the Parnassus Avenue side (increasing to a total of three stories and up to 45 feet in height). Only minor loss of ornamental vegetation could occur during demolition and construction, but new landscaping would be installed. As discussed above, this project would exceed the City's 80-foot height designation at this site and consequently, not align with 2014 LRDP sub-objective 1B in this respect, although it would be only a nominal exceedance. The Irving Street Arrival project would be generally consistent with sub-objective 1C given the modest scale of this project. The Irving Street Arrival project would also be consistent with sub-objective 1D related to pedestrian-friendly urban design principles because it would include improvements to the pedestrian entrance on Irving Street, and improve pedestrian access between Irving Street and Parnassus Avenue. Therefore, the Irving Street Arrival project would not conflict with applicable regulations governing scenic quality.

Mitigation: None required.

Research and Academic Building

The RAB project would be approximately 130 feet in height in an area of the city zoned for 130 feet. Therefore, the RAB project would not exceed height allowed under the Planning Code, and hence would be consistent with 2014 LRDP sub-objective 1B. The RAB project would be taller than the existing UC Hall (which ranges between approximately 75 and 100 feet in height), which it would replace, but would generally be consistent with sub-objective 1C because it would replace the UC Hall with a similar use, and would be within the City's height and bulk designation for the site. Miscellaneous ornamental tree loss in the RAB vicinity would occur during demolition and construction, however, new replacement landscaping would be installed. Therefore, the RAB project would not conflict with applicable regulations governing scenic quality. The RAB would also be generally consistent with sub-objective 1C as it would accommodate the development of the adjacent Promenade that would promote east-west pedestrian mobility within this vicinity.

Mitigation: None required.

Initial Aldea Housing Densification

As shown in **Figure 4.1-19**, buildings proposed as part of the initial Aldea Housing Densification project would be up to 96 feet in height in an area of the city currently zoned for 40 feet. As such, this project would not align with 2014 LRDP sub-objective 1B because it would not be consistent with local zoning and height and bulk limitations for the site. However, consistent with the CPHP design guidelines, the initial Aldea Housing Densification project would be developed in a way that would reinforce its connection with Mount Sutro, respect the existing wooded setting and open space areas, refrain from impacting the extent of the Reserve, and establish discrete façade treatments to embrace the surrounding context. Some trees and other vegetation presently growing within the housing complex may be removed, however, new replacement landscaping would be installed. This project would also continue the existing use of the Aldea Housing complex site for residential uses. For these reasons, this project would be consistent with 2014 LRDP sub-objective 1C. As a result, the initial Aldea Housing Densification project would not conflict with applicable regulations governing scenic quality.

Mitigation: None required.

Initial Phase Improvements

On balance, the Initial Phase improvements would be generally consistent with 2014 LRDP sub-objectives 1B through 1D. Consistent with sub-objective 1B, these improvements are of a scale that would comply with local zoning and height and bulk limitations. As discussed in Chapter 3, Project Description, certain utility improvements within the campus site, such as the fuel tank replacement, would require some localized grading and tree removal, however, all areas impacted during construction would be revegetated as needed. Implementation of the Parnassus Avenue Streetscape Plan improvements would be consistent with sub-objective 1D for incorporation of pedestrian friendly urban design principles. As a result, the Initial Phase Improvements would not conflict with applicable regulations governing scenic quality.

Mitigation: None required.

Informational Discussion of Consistency with City General Plan

the following discussion considers for informational purposes whether the CPHP would be consistent with San Francisco General Plan policies governing scenic quality. Because of the University's constitutional exemption from local land use regulation, conflicts with City regulations would not constitute significant environmental effects.

Existing

Proposed

SOURCE: Prevision Design, 2019

UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-19

Viewpoint 11: Visual Simulation of Proposed CPHP New Housing in Aldea Housing Complex from Clarendon Avenue, Looking West

The Urban Design Element of the City's General Plan defines the City's desired aesthetic character and quality, and includes policies and principles that guide new development within the City. To the extent the CPHP would conflict with Urban Design Element policies that seek to recognize and protect major views in the city, that analysis is provided in Impact AES-1, above.

With respect to scenic quality, relevant objectives and principles in the Urban Design Element are listed above, under *Regulatory Framework*. In general, the Urban Design Element generally seeks to develop buildings consistent with the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction, to promote building forms that respect and improve the integrity of open space, and to promote the importance of low-rise buildings surrounding large parks at tops of hills to maintain visibility of the park from other areas of the city.

The existing campus site is notable because of the collection of tall buildings that stand out among surrounding off-site development, which is limited to 40 feet in height. Development under the CPHP would further this pattern, by increasing building massing and heights within the campus site. The proposed CPHP buildings would reinforce the campus site character by adding tall buildings in an area of the campus that is already distinguishable for its cluster of tall buildings. As such, the CPHP would be generally consistent with Urban Design Element Policy 1.3, which states that buildings, when seen together, produce a total effect that characterizes the city and its districts, and with Policy 1.6, which strives to make centers of activity more prominent through design of street features and by other means. However, the CPHP would not be consistent with Policy 3.6, which states that the height of buildings should be related to the prevailing scale and character of existing development, when considering the proposed New Hospital would be nearly 100 feet taller than the tallest existing building at the campus site (Moffitt Hospital). With respect to Policy 3.4, which states that building forms should respect and improve the integrity of open spaces and other public areas, the proposed New Hospital could encroach on the adjacent hillside within the Reserve and require modifications to the Reserve boundary, however as noted above the University would designate new Reserve area elsewhere on the campus site in an equal or greater amount than that lost; and proposes new open space within the campus core by way of the proposed Promenade, expanded Saunders Court and Millberry Terrace.

Impact AES-3: Implementation of the CPHP would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area. (Less than Significant with Mitigation)

CPHP

Development of the CPHP could increase ambient light levels due to light dispersion from new buildings. Increases in night lighting could affect nighttime views on the campus site or in the surrounding neighborhood. New light sources could include street lights, illuminated signage, exterior safety lighting and light emitted from building windows. In addition, glare could be generated from reflective building materials.

Lighting would be developed in accordance with campus design principle W4 from the CPHP, which states that lighting should be designed to modulate energy consumption and lighting levels, and respond to program needs and neighborhood concerns. Although specific architectural features and building materials have yet to be determined, the proposed improvements have the potential to include reflective surfaces, such as metal and glass. The resultant glare could affect nearby residents, pedestrians and passing motorists. **Mitigation Measure CPHP AES-3** would be implemented to reduce the impact to a less than significant level. By employing appropriate design standards and minimizing the quantity of reflective material used in new construction, light and glare impacts and impacts to views related to lighting could be reduced to less-than-significant levels.

CPHP Mitigation Measure AES-3: Minimize light and glare resulting from new buildings.

Light and glare from buildings shall be minimized through the orientation of the building, use of landscaping materials and choice of primary facade materials. Design standards and guidelines to minimize light and glare shall be adopted for the new buildings, including:

- Reflective metal walls and mirrored glass walls shall not be used as primary building materials for facades.
- Installation of illuminated building signage shall strive to be consistent with UCSF design guidelines and/or City Planning Code sign standards for illumination.
- Exterior light fixtures shall be configured to emphasize close spacing and lower intensity light. Light fixtures shall use luminaries that do not direct the cone of light towards off-campus structures.
- Design parking structure lighting to minimize off-site glare.

Significance after Mitigation: Less than Significant.

Irving Street Arrival, Research and Academic Building and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

The Irving Street Arrival, Research and Academic Building and initial Aldea Housing Densification projects, and Initial Phase improvements would have the same impacts with respect to light and glare as the impacts described above for the CPHP. **CPHP Mitigation Measure AES-3**, described above, would also apply to these initial phase projects, the implementation of which would reduce impacts to a less-than-significant level.

Mitigation: Implement CPHP Mitigation Measure AES-3.

Significance after Mitigation: Less than Significant.

Impact AES-4: Implementation of the CPHP would potentially create wind hazards in publicly accessible areas of substantial pedestrian use. (Significant and Unavoidable with Mitigation)

CPHP

The CPHP would alter pedestrian-level wind conditions through the demolition of some existing structures and the construction of several new structures. The greatest change in overall site massing, compared to existing conditions, would result from development of the New Hospital, which would be constructed along Parnassus Avenue. In combination with the redevelopment and expansion of Millberry Union, the New Hospital could increase wind speeds along some lengths of Parnassus Avenue through a combination of "downwash" (winds intercepted by a building, diverted down to the ground and accelerated) and channeled flow (winds accelerated by being forced through a relatively narrow passage between buildings). If the New Hospital presents a relatively massive façade towards Parnassus Avenue, the potential increases for substantial downwash and acceleration of winds at ground level that would strike the façade and flow downwards and around the northeast corner of the New Hospital.

Based on the computer modeling (computational wind engineering) simulations conducted for the CPHP, wind speeds with the CPHP would increase along Parnassus Avenue, between approximately the western edge of Medical Building 1 (the Ambulatory Care Center at 400 Parnassus Avenue) and Hill Point Avenue, such that they would fail to meet the 11-mph pedestrian comfort criterion, both west and east of the northeast corner of the New Hospital. (A relatively small area between Medical Building 1 and the west end of the New Hospital exceeds the pedestrian comfort criterion under existing conditions.) Wind speeds are expected to increase most substantially at the northeast corner of the New Hospital and may, depending on the design, also exceed the comfort criterion along the eastern base of the New Hospital.

Additionally, winds flowing past the New Hospital may be accelerated between the building and the local terrain, and the accelerated wind could continue upslope towards Farnsworth Lane and the northern end of Edgewood Avenue, both of which are above and east of the New Hospital site. As a result, wind speeds could exceed the pedestrian comfort criterion in these adjacent residential locations, as well. Computer modeling indicates wind speeds exceed the pedestrian comfort criterion along a small area along Farnsworth Lane under existing conditions, but the CPHP could substantially expand the size of this area to include all of Farnsworth Lane and Edgewood Avenue north of Belmont Avenue.

Computer modeling also shows that wind speeds would be in excess of the 11-mph pedestrian comfort criterion on Parnassus Avenue at, and west of, 3rd Avenue, adjacent to part of the new Research and Academic Building (RAB), which would replace UC Hall. Wind speeds would also exceed the pedestrian comfort criterion in a small area behind the RAB. These increased wind speeds would affect a pedestrian promenade to be developed between the RAB and proposed new construction north of the Regeneration Medicine Building and would result from channeling of westerly winds between the buildings. This interior campus location would be less public than Parnassus Avenue and therefore increased wind speeds would affect fewer pedestrians.

Other locations along Parnassus Avenue are expected to meet the 11-mph pedestrian comfort criterion. Wind speeds at most other locations on, and adjacent to, the campus site are also expected to meet the pedestrian comfort criterion.

Although compliance with the wind hazard criterion was not evaluated as a design of the New Hospital is not yet available, it can be reasonably predicted that, depending on the ultimate design, the hazard criterion could be exceeded around the northeast corner of the New Hospital, where the greatest increases in pedestrian-level wind speeds would be anticipated. This would be a significant impact. **CPHP Mitigation Measure AES-4** would require that wind-tunnel testing of specific building designs for structures 80 feet tall or greater be implemented to reduce wind impacts as feasible. However, in the absence of wind tunnel testing of specific building designs, it cannot be concluded that effects would be reduced to a less than significant level. Therefore, this impact would be significant and unavoidable with mitigation.

It is noted that, as stated above in the Approach to Analysis, this analysis is likely conservative in that it was based on a simple massing model of the proposed CPHP, and not on actual building designs, which have not yet been prepared. In general, a more likely building scenario includes building setbacks and other building sculpting features, such as podiums, would be expected to result in less substantial wind effects.

CPHP Mitigation Measure AES-4: Design new buildings to minimize wind impacts at pedestrian level.

Prior to the approval of the design of individual buildings to be developed pursuant to the CPHP and for which one or more building facades would have a height of 80 feet or more, UCSF shall engage a qualified wind consultant to conduct wind tunnel testing of the proposed building(s) to determine whether the building(s) would result in new exceedance(s) of the City of San Francisco’s 26-mph pedestrian wind hazard criterion. The wind tunnel testing shall be conducted for the building(s) under consideration in the context of then-existing conditions as well as in the context of conditions representative of then-anticipated CPHP buildout (the buildout scenario in the EIR, as may be modified from time to time by UCSF to reflect actual building designs known at the time) so as to determine whether the individual building(s) and/or the buildout condition would result in exceedances of the wind hazard criterion.

If the wind tunnel analysis determines that the building(s)’ design or buildout conditions would increase the hours of wind hazard exceedance or the number of test points subject to hazardous winds, compared to then-existing conditions, UCSF shall work with the wind consultant to identify feasible mitigation strategies, including design changes (e.g., setbacks, rounded/chamfered building corners, stepped facades, etc.), to eliminate or reduce wind hazards to the maximum feasible extent. If UCSF finds that these changes or other wind speed reduction strategies are not feasible as they would unduly restrict the proposed building’s space program, result in operational inefficiencies, and/or substantially higher costs, the building(s) may nonetheless be approved provided that the project incorporates wind speed reduction strategies to the maximum feasible extent, as determined by UCSF in consultation with the wind consultant. Wind speed reduction strategies could also include features such as landscaping, localized installation of porous/solid screens, installation of canopies along building frontages, and the like.

> **Significance after Mitigation:** Significant and Unavoidable. As noted above, it cannot be stated with certainty that no wind hazard exceedances would result from the CPHP, and therefore this impact could be significant even with mitigation. Accordingly, this impact would be considered significant and unavoidable with mitigation.

Irving Street Arrival, RAB and Initial Aldea Housing Densification

The computational wind assessment did not individually evaluate the Irving Street Arrival, RAB and initial Aldea Housing Densification projects; that is, no separate analysis was undertaken for each project on its own. However, the analysis did evaluate the Irving Street Arrival and the RAB projects, along with the New Hospital, absent other longer-term campus development, to identify the impacts of these projects separately from other longer-term development. This intermediate scenario indicates that the Irving Street Arrival project could incrementally increase wind speeds on Carl Street just west of Hillway Avenue, adjacent to the northeast corner of the campus. This would result in wind speeds exceeding the pedestrian comfort criterion in an area adjacent to the Medical Building 1 garage, enlarging an existing very small area of exceedance. Although it is not known if the wind hazard criterion would be exceeded at this location, this is judged to be, at least potentially, a significant impact. As described above, the proposed RAB project would, in combination with other CPHP development to the south, increase wind speeds on Parnassus Avenue and on the pedestrian promenade south of the RAB such that they would exceed the pedestrian comfort criterion. In the intermediate scenario, without the additional development to the south and west, the RAB project would likewise result in wind speeds on Parnassus Avenue and on the pedestrian promenade that would exceed the pedestrian comfort criterion, and to a greater degree than with full buildout of the PHMP because there would be less sheltering by buildout development to the south and west. This would also be a significant impact. Both the Irving Street Arrival and the RAB projects would exceed 80 feet in height along at least one façade and therefore **CPHP Mitigation Measure AES-4** would require that wind-tunnel testing of the specific designs of these buildings be conducted to analyze wind impacts and put forth specific measures to reduce wind speed if an exceedance is identified. However, in the absence of wind tunnel testing of specific building designs, it cannot be concluded that effects would be reduced to a less than significant level. Therefore, this impact would be significant and unavoidable with mitigation.

The computational wind assessment indicates that the proposed Aldea Housing Densification project would have relatively modest effects on pedestrian-level winds. Pedestrian wind conditions at the Aldea Housing complex site are substantially moderated by the surrounding forest canopy. Nevertheless, the CPHP would develop three new residential buildings up to 96 feet in height that could result in localized wind conditions that could result in a significant impact. These buildings would be subject to **CPHP Mitigation Measure AES-4**, which would require that wind-tunnel testing of the specific designs of these buildings be implemented to reduce wind impacts as feasible. However, in the absence of wind tunnel testing of specific building designs, it cannot be concluded that effects would be reduced to a less than significant level. Therefore, this impact would be significant and unavoidable with mitigation.

Irving Street Arrival

Mitigation: Implement CPHP Mitigation Measure AES-4.

Significance after Mitigation: Significant and Unavoidable. As noted above, it cannot be stated with certainty that no wind hazard exceedances would result from the Irving Street Arrival, and therefore this impact could be significant even with mitigation. Accordingly, this impact would be considered significant and unavoidable with mitigation.

Research and Academic Building

Mitigation: Implement CPHP Mitigation Measure AES-4.

Significance after Mitigation: Significant and Unavoidable. As noted above, it cannot be stated with certainty that no wind hazard exceedances would result from the RAB, and therefore this impact could be significant even with mitigation. Accordingly, this impact would be considered significant and unavoidable with mitigation.

Initial Aldea Housing Densification

Mitigation: Implement CPHP Mitigation Measure AES-4.

Significance after Mitigation: Significant and Unavoidable. As noted above, it cannot be stated with certainty that no wind hazard exceedances would result from the Aldea Housing Densification, and therefore this impact could be significant even with mitigation. Accordingly, this impact would be considered significant and unavoidable with mitigation.

Initial Phase Improvements

The computational wind assessment did not include any of the Initial Phase improvements. However, the proposed Initial Phase building renovations that would occur as part of these improvements would not change any of the building footprint or heights, and thus, would not result in a substantive change in those wind effects that were modeled. Other Initial Phase improvements, such as those under the Parnassus Avenue Streetscape, utility improvements, and neighborhood investments would not be of a scale and nature that would have the potential to result in substantial wind effects. The impact would be less than significant.

Mitigation: None required.

Impact AES-5: Implementation of the CPHP would not create new shadow in a manner that would substantially and adversely affects the use and enjoyment of publicly accessible open spaces. (Less than Significant)

CPHP

Development proposed under the CPHP would increase shadow in the vicinity of the campus site. New shadow from the CPHP would reach as far north as the Golden Gate Park baseball fields (at Martin Luther King Jr. Drive and 7th Avenue) early in the morning on the winter solstice. On the fall/spring equinox, CPHP shadow would extend west covering parts of Irving Street between 4th Avenue and 8th Avenue and Judah Street at 7th Avenue early in the morning. In the late afternoon on the fall/spring equinox, CPHP shadow would extend east covering parts of Edgewood Avenue, and Grattan Street between Stanyan Street and Cole Street. The CEQA threshold of significance for shadow impacts used in this EIR is whether a project would create new shadow in a manner that would substantially and adversely affect the use and enjoyment of publicly accessible open spaces. Therefore, the significance of shadow cast on streets, sidewalks, and private properties is not used as the basis for determining shadow impacts. The analysis in this section focuses on whether the CPHP would cast new shadow on publicly accessible open spaces in the vicinity of the campus site and whether this new shadow would adversely affect the use and enjoyment of these open spaces.

The discussion below analyzes impacts of the CPHP on three City parks (Golden Gate Park, Richard Gamble Memorial Park, and Grattan Playground), and on two schoolyards that participate in the Shared Schoolyard Project and provide public access on weekends (Independence High School and Grattan Elementary School). The Interior Greenbelt located adjacent to and east of the Reserve, and the Reserve itself located within the campus site, were also studied for this analysis.

It was determined the CPHP development would not cast new shadow on the Interior Greenbelt. New shadow cast on the Reserve under the CPHP would generally be minimal because most of the campus core development is located north of the Reserve. In particular, the New Hospital would cast shadow on only the steep narrow portion of the Reserve that is immediately east of the hospital site and would not affect any primary trails or public use areas. CPHP development along the east side of the proposed Fourth Avenue extension south of Parnassus Avenue would newly shade a relatively narrow and also steep portion of the Reserve in the afternoon. This shadow would begin as early as approximately 2:00 p.m., around the winter solstice, and as late as approximately 4:00 p.m., around the summer solstice. Shadow from the CPHP would not reach any of the trails on Mount Sutro. Given the lack of impact on the Interior Greenbelt and the relatively minimal shadow on the Reserve, effects on these two recreational areas would be less than significant and they are not discussed further.

Shadow from the proposed Aldea Housing Densification project would be limited, primarily because it would fall largely on a densely wooded area where the existing trees cast substantial shadow under existing conditions. This relatively limited new shadow would fall in proximity to the new buildings, including on parking lots and streets serving the Aldea Housing buildings. New shadow would also be cast on landscaped areas within the Aldea Housing complex, but effects on midday sunshine would be limited. Therefore, new shadow from the Aldea Housing Densification project would not be expected to adversely affect the use of nearby outdoor spaces and is not discussed further.

Table 4.1-1 presents a summary of CPHP shadow effects on public open spaces analyzed. In the table, the time frame presented under the season header (spring/fall equinoxes and summer and winter solstices) are consistent with the period during which section 295 of the *Planning Code* regulates solar access.[9] The times shown for the parks and open spaces denote when new shadow, caused by buildings that could be developed under the CPHP, would occur.

TABLE 4.1-1
SUMMARY OF CPHP PROGRAM SHADOW ON PUBLIC OPEN SPACES NEAR THE CAMPUS SITE

Park/Open Space	Season and Section 295 Hours[a]			
	Spring/Fall Equinoxes 7:57 a.m. – 6:09 p.m.	**Summer Solstice 6:46 a.m. – 7:36 p.m.**	**Winter Solstice 8:19 a.m. – 3:54 p.m.**	**Date of Maximum Shading**
Open Spaces Under the Jurisdiction of the Recreation and Parks Department				
Golden Gate Park	None	None	8:19 a.m. – 9:30 a.m. (minor new shadow)	December 20th between 8:19 a.m. – 9:30 a.m.
Richard Gamble Memorial Park	None	None	None[c]	November 1st between 4:10 p.m. – sunset
Grattan Playground	None	None[b]	None	August 2nd between 7:00 p.m. – sunset
School Playgrounds Open to the Public on Weekends				
Independence High School	None	None	None	October 11th between 8:16 a.m. – 8:30 a.m.
Grattan Elementary School	None	None	None	September 6th between 6:31 p.m. – sunset

NOTES:

[a] The Planning Department commonly relies upon the hours governed by Planning Code Section 295—from one hour after sunrise to one hour before sunset—in environmental review.

[b] Shadow would be cast on the Grattan Playground between April and early September, but would not be cast on the Summer or Winter Solstice, or the Spring/Fall Equinox.

[c] Shadow would be cast on the Richard Gamble Memorial Park between January and February, and again between October and November, but would not be cast on the Summer or Winter Solstice, or the Spring/Fall Equinox.

SOURCE: Prevision Design, 2019

In order to provide a visual understanding of the location, size, and extent of the new shading, graphics were prepared to accompany the qualitative analysis. **Figures 4.1-20** through **4.1-34** depict existing-plus-project shadow for five representative times on the summer solstice (June 21 the longest day of the year, when the sun is highest in the sky and shadows are the shortest at any given time of day), the spring/fall equinoxes (March 19/September 20, when the sun's position is nearly identical to the opposite equinox and represent the midway point between the winter and summer solstices), and the winter solstice (December 20, the shortest day of the year, when the sun is lowest in the sky and shadows are the longest at any given time of day).[10] In these figures, gray areas represent shading occurring under existing conditions, and blue represents net new shading that would occur as a result of the CPHP.

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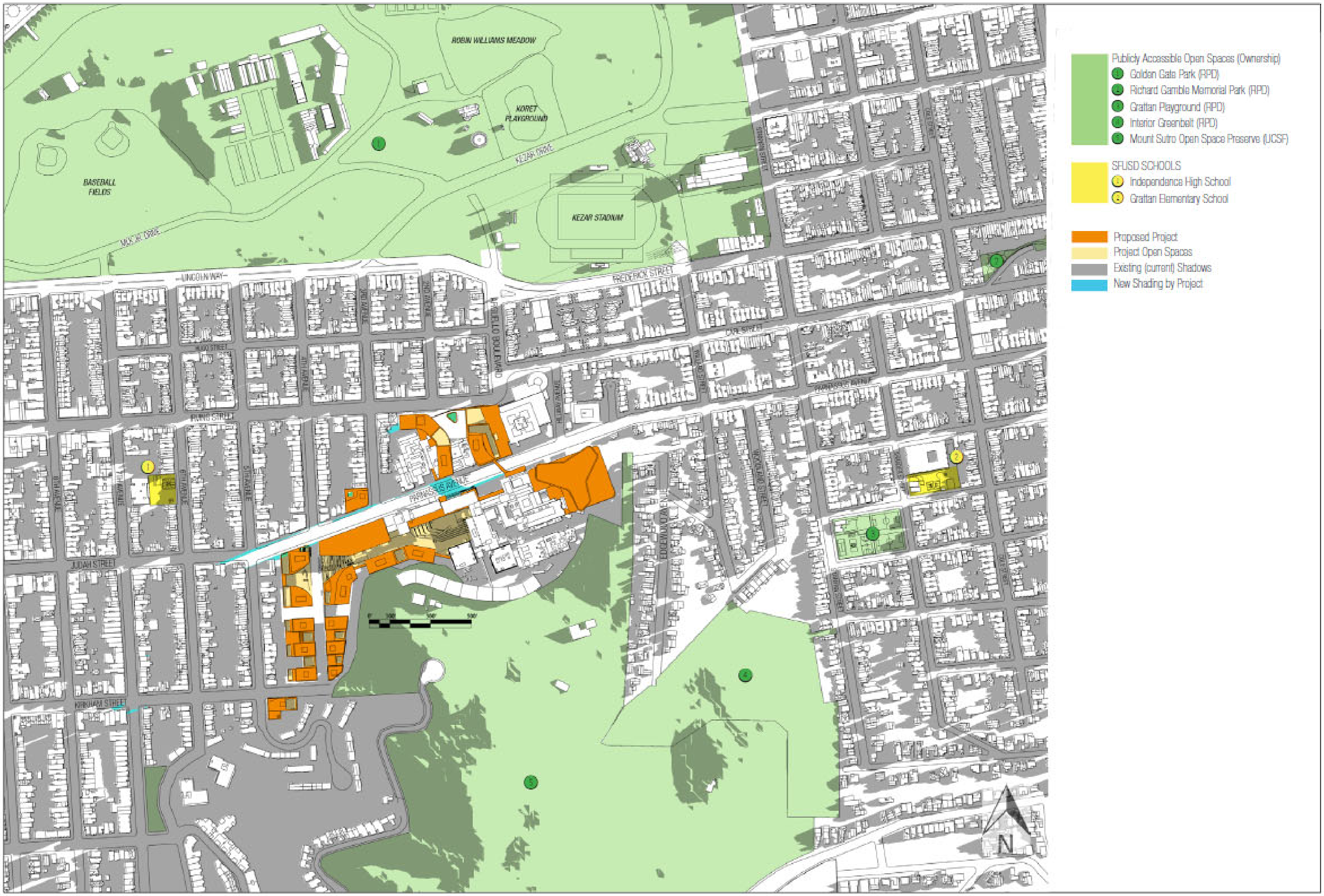
[9] Although the University is constitutionally exempt from local land use regulation such as section 295 of the *Planning Code* when using properties under its control in furtherance of its educational mission, the University strives to be substantially consistent with local policies where feasible.

[10] These dates can vary slightly from year to year.



SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-20
Summer Solstice
June 21, 6:46 am

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-21
Summer Solstice
June 21, 10:00 am

ESA

SFO.D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-22
Summer Solstice
June 21, 12:00 pm

ESA

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-23
Summer Solstice
June 21, 3:00 pm

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-24
Summer Solstice
June 21, 7:36 pm

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-25
Approx. Fall Equinox (Spring Similar)
September 20, 7:57 am

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-26
Approx. Fall Equinox (Spring Similar)
September 20, 10:00 am

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

ESA

SFO.D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-27
Approx. Fall Equinox (Spring Similar)
September 20, 12:00 pm

SFO.D190291.00 - UCSF CPHP EIR\2. Graphics\Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-28
Approx. Fall Equinox (Spring Similar)
September 20, 3:00 pm

ESA

SFO.D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-29
Approx. Fall Equinox (Spring Similar)
September 20, 6:09 pm

ESA

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-30
Winter Solstice
December 20, 8:19 am

SOURCE: Prevision Design, 2020

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-31
Winter Solstice
December 20, 10:00 am

ESA

SFO.D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

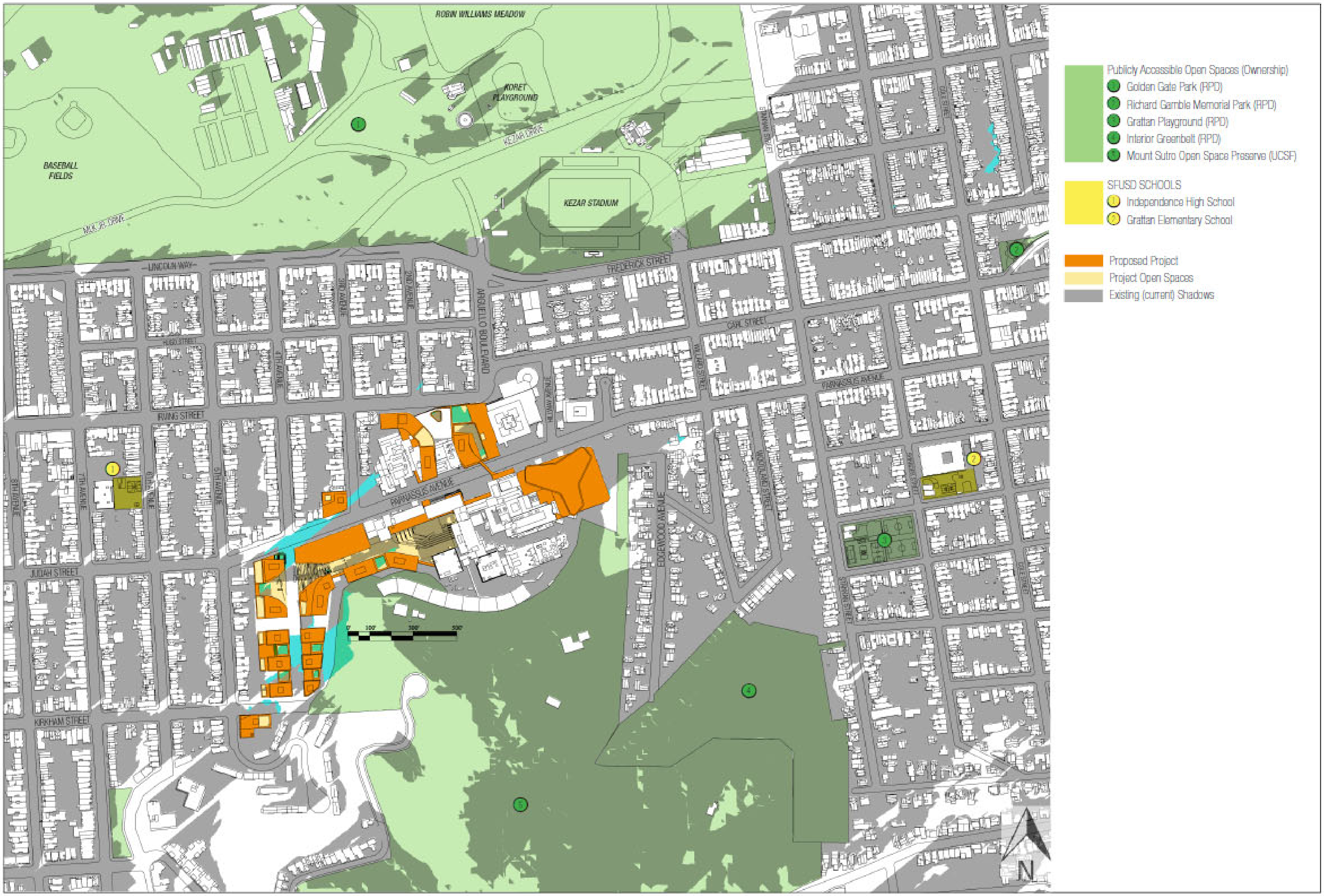
UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-32
Winter Solstice
December 20, 12:00 pm

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

Figure 4.1-33
Winter Solstice
December 20, 3:00 pm



SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-34
Winter Solstice
December 20, 3:54 pm

SFO.D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

For each of these days (summer solstice, spring/autumn equinoxes, and winter solstice), shadow diagrams at five times of day included: one hour after sunrise; the beginning, middle, and end of the midday period of peak use (10:00 a.m., 12:00 p.m., and 3:00 p.m.); and one hour before sunset. Presenting a series of shadow diagrams from the same day demonstrates how shadow moves across the space and expands and contracts over a specific period of time. They represent a representative range of dates and times, including the time of peak midday use of open space on the longest day of the year, on the equinoxes (when day and night are of approximately equal length), and on the shortest day of the year. From these shadow diagrams, shadow impacts on particular open spaces are described and evaluated. It should be noted that the 3D virtual model of the project used to model shadow impacts includes structures and topography, but does not model shading effects from existing or proposed vegetation.

Golden Gate Park

Proposed CPHP development, and in particular, the New Hospital which would be up to 294 feet tall[11], would increase shadow on portions of Golden Gate Park during early morning hours in the winter between mid-October and late February. New shadow would not be cast during any other season. On the winter solstice, which is the day of maximum shading on Golden Gate Park, new shadow from CPHP development would be added to shadow from existing buildings and topography between 8:19 a.m. and 9:30 a.m. As shown in Figure 4.1-30, this new shadow would be of limited extent compared to the overall unshaded area of Golden Gate Park. All new CPHP shadow on Golden Gate Park would be cast by the New Hospital.

Figure 4.1-35 depicts shadow on the date and time of maximum shading on Golden Gate Park; this figure depicts the same time as Figure 4.1-30 but at a larger scale and in more detail, as it focuses on effects on Golden Gate Park. As can be seen in Figure 4.1-35, new shadow on the winter solstice in the early morning would cover portions of one of the baseball fields, including the third-base line, portions of left field, and the stands behind home plate. In addition, shadows would cover minor portions of the wooded areas and walking paths near Lincoln Way. Throughout the morning, shadows would retreat toward the southwest, covering portions of left field and the Golden Gate Park Nursery, eventually receding entirely from the park by 9:30 a.m.

Baseball fields are typically utilized for games or practice during the midday or in the afternoon. While some may use baseball fields early in the morning, the periods of heaviest use would be around midday or in the afternoon when baseball games would be expected to occur. During these times, CPHP shadow would not reach Golden Gate Park. In addition, these fields are likely to be used substantially less during the winter rainy season. Because of the limited extent of potential new shadow that would be cast by CPHP development, both in terms of area covered and length of time, and because the new shadow would not affect the park during times of heaviest use, new shadow would not be expected to affect people's enjoyment of the park substantially. Because of this, the shadow impact from CPHP development on Golden Gate Park would be less than significant.

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[11] Excluding potential rooftop observation deck and vestibule that would occupy a small portion of the roof. No rooftop mechanical equipment/enclosures are proposed for the New Hospital.

SOURCE: Prevision Design, 2020

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

Figure 4.1-35
Winter Solstice
December 20, 8:19 am
Date of Maximum Shading on Golden Gate Park

Richard Gamble Memorial Park

No shadow from campus development under the CPHP would be cast on Richard Gamble Memorial Park on the summer/winter solstice or spring/fall equinox. However, campus development under the CPHP would cast new shadow on this park during the early morning and evenings between late January and late February, and again between mid-October and mid-November. All new CPHP shadow on Richard Gamble Memorial Park would be cast by the New Hospital. As shown in **Figure 4.1-36**, February 8th and November 1st would represent the dates of maximum shading. On these two days, new shadow would cover a minor portion of the landscaped area of this park after 4:10 p.m. However, the landscaped portion of the park currently contains mature trees that already cast substantial shade on this portion of the park, particularly in the early morning. As stated above, the shadow model does not consider shadow from trees. This is because the shading effects from trees can change based on the season, and because the City has the authority to issue tree removal permits for various reasons, including new construction or damage caused by trees.

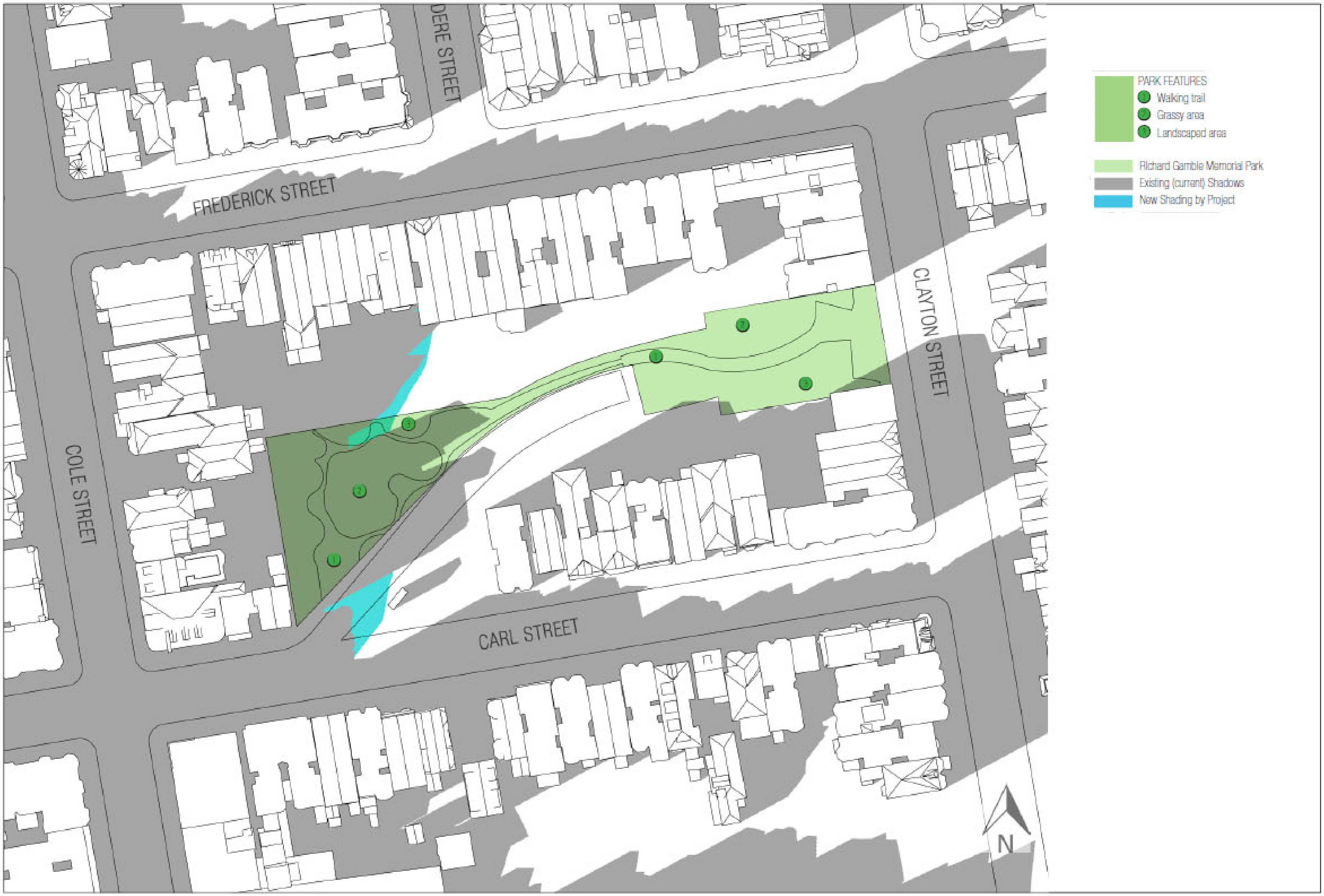
Given the limited extent of CPHP shadow in the fall and winter, and that shadow from the CPHP would only occur after 4:10 p.m. on the landscaped portion of the park that would likely already be shaded by existing trees on the date of maximum shading, the shadow impact of CPHP development on the Richard Gamble Memorial Park would be less than significant.

Grattan Playground

No shadow from campus development under the CPHP would be cast on Grattan Playground on the summer/winter solstice or spring/fall equinox. However, campus development under the CPHP would cast new shadow on the Grattan Playground between early April and early September in the late afternoon. All new CPHP shadow on Grattan Playground would be cast by the New Hospital. As shown in **Figure 4.1-37**, on the dates of maximum shading (May 10 and August 2), shadow cast from CPHP development would cover the tennis court, four square courts, play structure, and blacktop area of this playground at around 7:00 p.m. For the last few minutes prior to one hour before sunset that marks the end of the time period governed by section 295 of the *Planning Code* (7:18 p.m.), new shadow from the CPHP would extend to the east portion of the park, covering the features previously mentioned as well as the majority of two soccer fields.

In the first and last hours of sunlight, very lengthy shadows move more quickly across the ground than do shadows at other times of day. While shadow would cover a majority of the park late in the afternoon on the day of maximum shading, new shadow from the CPHP would last on average 24 minutes. On the dates of maximum shading, CPHP shadow would last approximately 37 minutes before being completely subsumed by shadow from other nearby buildings.

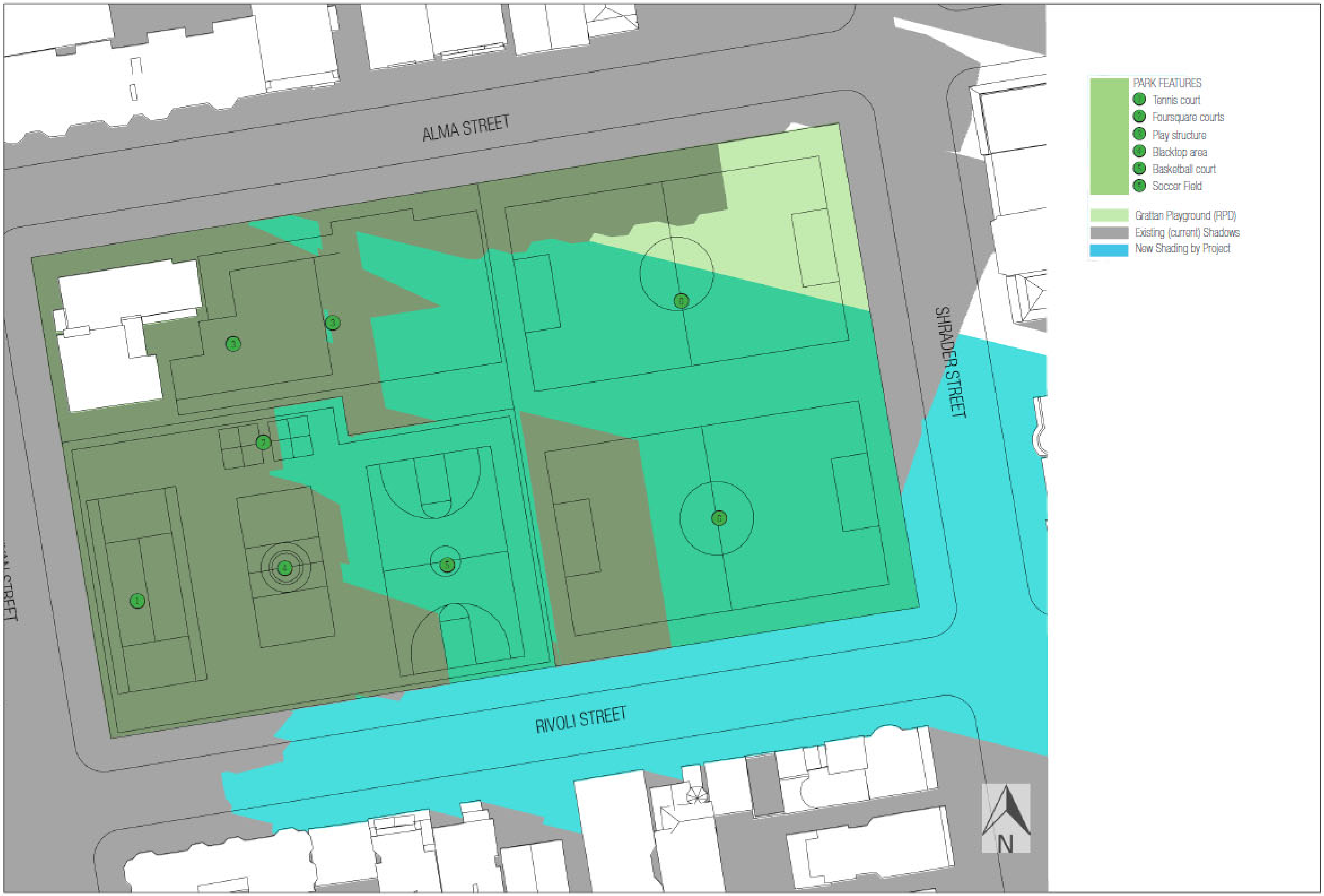
A review of publicly available information regarding events occurring at this park during the late spring and summer was undertaken to determine whether CPHP shadow would create new shadow that would substantially and adversely affect the use and enjoyment of this park. Events that are frequently scheduled during the late spring and summer on work days, in which members of the public are invited to help plant new plants, remove weeds, and mulch the planters in the playground. Because weeding and gardening are relatively active uses and not particularly sensitive to the availability of sunlight, such as sitting or reading, which are passive uses, CPHP shadow cast during the late spring and summer would not substantially and adversely affect this activity.



SFO/D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

Figure 4.1-36
February 8 and November 1, 4:10 pm
Date of Maximum Shading on Richard Gramble Memorial Park



SFO/D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

ESA

Figure 4.1-37
May 10 and August 2, 7:15 pm
Date of Maximum Shading on Grattan Playground

Other unscheduled activities assumed to occur at this park throughout the late spring include typical use of the play structure, tennis court, four square courts, black top area, and soccer fields. Like weeding and gardening, these activities are active uses that can occur in both sun and shade. While the availability of sunlight can be seen as a benefit to some, it is conceivable that other park users could prefer shade especially during the late spring and summer, and in particular, on warm days. Because CPHP shadow would be cast in the late afternoon and would only last for 37 minutes during the hours governed by section 295, this shadow would not substantially and adversely affect the use and enjoyment of this park considering it would occur at the end of the day at a time when park users would expect waning sunlight. Therefore, the shadow impact from CPHP development on the Grattan Playground would be less than significant.

Grattan Elementary School

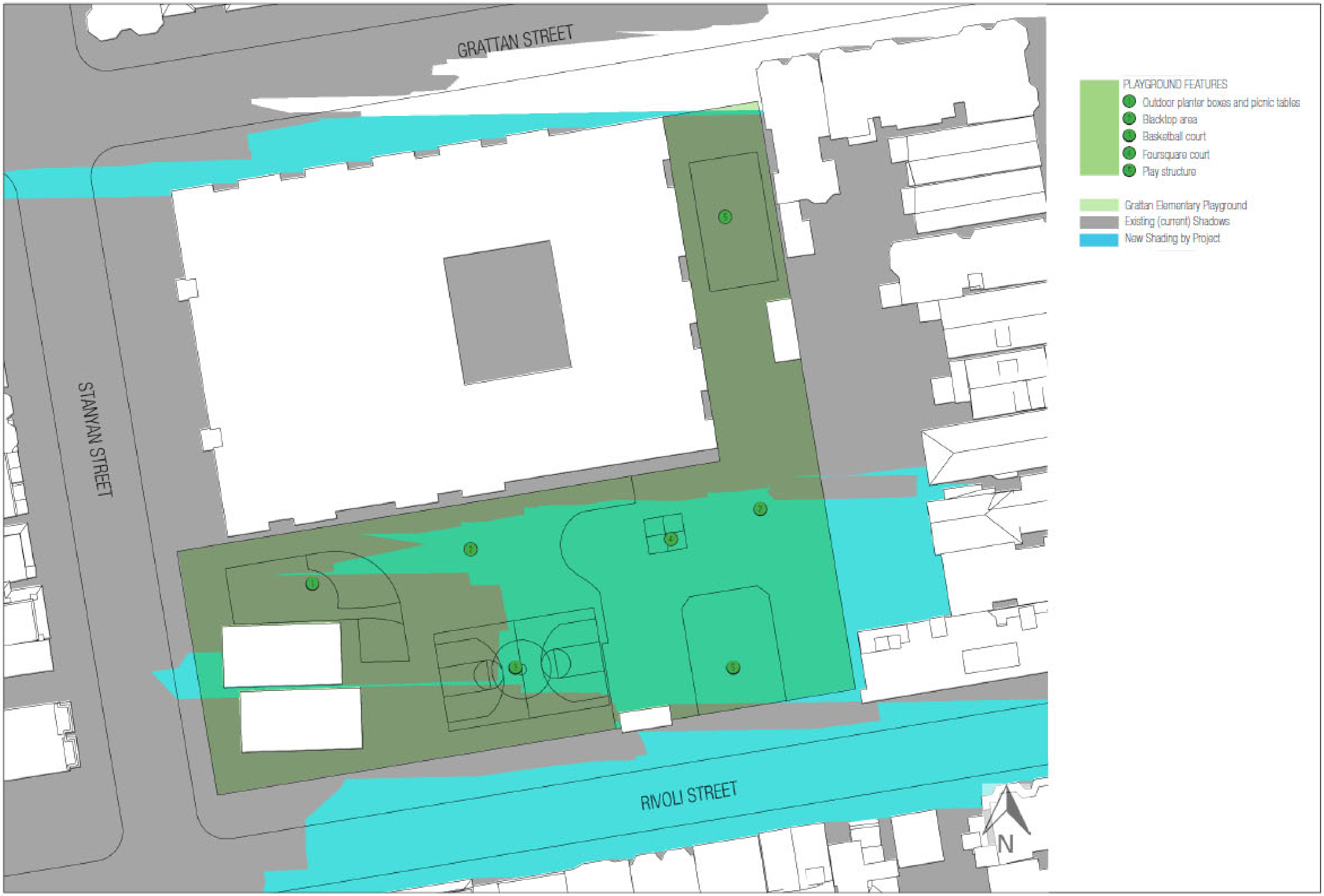
Campus development under the CPHP would cast new shadow on Grattan Elementary School between late March and late April, and between mid-August and mid-September. During this time, new shadow would be cast on the school playground in the late afternoon, and would last on average 15 minutes. As shown in **Figure 4.1-38**, on the dates of maximum shading (September 6 and April 5), existing shadows would cover approximately half the playground between 6:31 p.m. and sunset, and shadow from CPHP development would cover the remaining half for approximately 20 minutes before being completely subsumed by shadow from other buildings. The entire playground would be in shadow for the final hour of sunlight during the hours governed by section 295, with new shadow resulting from the CPHP covering the blacktop area, basketball court, four square court, and play structure. All new CPHP shadow on Grattan Elementary School would be cast by the New Hospital.

At Grattan Elementary school, the regularly-scheduled school day ends at 1:50 p.m. After school programs serve as an extension of the school day, but these would likely have substantially fewer students in attendance than would be on campus during the day. In addition, students are likely to be picked up by their parents by 6:31 p.m. when new shadow from the CPHP would affect the school yard. Therefore, new shadow would only reach the school playground when there are expected to be few, if any, students present. Therefore, CPHP shadow would not be expected to substantially or adversely affect the use and enjoyment of this open space during the week.

As stated earlier, this schoolyard participates in the Shared Schoolyard Project, which provides public access on the weekend. Because CPHP shadow would be cast in the late afternoon and would last up to 20 minutes during the hours governed by section 295, this shadow would not substantially and adversely affect the use and enjoyment of this park considering it would occur at the end of the day at a time when open space users would expect there to be less sunlight available. Therefore, the shadow from CPHP development would not substantially and adversely affect the use and enjoyment of this open space, and according, the impact on the Grattan Elementary School would be less than significant.

Independence High School

Campus development under the CPHP would cast new shadow on Independence High School in early February to late April, from mid-August to mid-September, and from late September to late October. During these times, new shadow from the CPHP development would reach the open space



SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.1-38
September 6 and April 5, 6:31 pm
Date of Maximum Shading on Grattan Elementary School

SFO D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

in the early morning from 7:57 a.m., the first hour governed by section 295, to around 8:30 a.m. The average duration of shadow from CPHP development during these times would be approximately 15 minutes. The majority of new CPHP shadow on Independence High School would be cast by the RAB project, with a smaller amount of new CPHP shadow cast by the New Hospital.

As shown in **Figure 4.1-39**, on the date of maximum shading (October 11 and March 1), at 8:30 a.m., existing shadows would cover the majority of the playground including the basketball court, blacktop area, and four square court. CPHP shadow would cover the remaining area of the playground, including the landscaped area and walking path. Between 8:30 a.m. and 8:45 a.m., shadow from CPHP development would recede from Independence High School entirely.

During the 2019—2020 school year, class begins at 8:00 a.m. Between 8:16 a.m. and 8:45 a.m., during the time of day when shadows would cover the most area of the open space, it is likely that students would be in class indoors, but is reasonable to assume a small amount of students would utilize the open space during this time for physical education. However, these areas would likely have heavier usage during the lunch period, throughout the day, and after school when more students would be on campus, compared to first thing in the morning. Because shadow from CPHP development would not affect the school's open space when its usage is anticipated to be highest, new shadow cast by the CPHP would not be expected to adversely affect the use and enjoyment of this open space on weekdays.

Like the Grattan Elementary School, Independence High School participates in the Shared Schoolyard Project, which provides public access on the weekend. On the weekend, especially early in the morning, usage of the open space is expected to be less than it would be on weekdays because school would not be in session. In addition, new shadow would not affect the open space after 8:30 a.m., thus, there would be ample time throughout the day to enjoy sunlight. Therefore, the shadow impact from CPHP development on the Grattan Elementary School playground would be less than significant.

Overall Impact on Shadow

Campus development under the CPHP would cast shadow on parks and open spaces in the vicinity of the campus site at different times of the day and year. In particular, CPHP development shadow would reach Golden Gate Park in the morning in late fall and winter, on Richard Gamble Memorial Park in the afternoon in late fall and winter, on Grattan Playground in the late afternoon between late spring and early fall, on Grattan Elementary School late in the afternoon in early spring and late fall, and on Independence High School early in the morning in early February to late April, from mid-August to mid-September, and from late September to late October. However, shadow from CPHP development would reach these spaces during the time of day when usage is expected to be lowest, thus, implementation of the CPHP would not be expected to adversely or substantially affect the use and enjoyment of these open spaces. This impact would be less than significant.

Mitigation: None required.

SFO/D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

Figure 4.1-39
October 11 and March 1, 8:30 am
Date of Maximum Shading on Independence High School

Irving Street Arrival, RAB and Initial Aldea Housing Densification

None of the Initial Phase projects, with the exception of the RAB project, would cast any new shadow on any of the above publicly accessible open spaces. As discussed above, the Aldea Housing Densification project would cast a relatively small amount of new shadow on the Reserve, but would not be expected to adversely affect the use of the Reserve. The RAB project would cast new shadow in the fall and spring on the landscaped area at the Independence High School open space in the morning until 8:30 a.m. However, shadow would recede from this area after 8:30 a.m. Shadow from the RAB project would not affect the Independence High School basketball court, blacktop area, or foursquare court on the dates of maximum shading. While shadows in the fall and spring would occur during the first part of the school day, new shadow from the RAB project would recede from this area entirely by the midday lunch hour and after school hours, when usage of the area would be expected to be greatest. Thus, implementation of the RAB project would not be expected to adversely or substantially affect the use and enjoyment of this open space. Therefore, effects of the Irving Street Arrival, RAB and initial Aldea Housing Densification projects would be less than significant.

Mitigation: None required.

Initial Phase Improvements

The proposed Initial Phase building renovations that would occur as part of these Initial Phase improvements would not change any of the building footprint or heights, and thus, would not result in new shadow that would affect any of the publicly accessible open spaces near the campus site. Other Initial Phase improvements, such as those under the Parnassus Avenue Streetscape, utility improvements, and improvements in the public realm would not be of a scale and nature that would have the potential to result in substantial shadow effects.

Mitigation: None required.

Cumulative Impacts

Impact C-AES-1: Implementation of the CPHP, combined with cumulative projects, would not have a substantial adverse effect on a scenic vista or conflict with applicable zoning and other regulations governing scenic quality. (Less than Significant)

Section 4.0 *Introduction to Environmental Analysis*, presents the list of reasonably foreseeable future projects in the vicinity that could contribute to cumulative aesthetic impacts. On-site cumulative development projects include a several demolition projects on the campus site (e.g., Surge, LPPI, Proctor buildings, etc.) that were previously approved under the 2014 LRDP but have not yet been implemented, and on-going implementation of forest management activities in the Reserve under the Mount Sutro Open Space Vegetation Management Plan.

As indicated in Section 4.0, there are no notable off-site cumulative development projects within the vicinity of the Parnassus Heights campus site. The area surrounding the campus site is built-out and opportunity for new development is limited, requiring reuse or redevelopment of existing buildings rather than new construction on undeveloped tracts of adjacent land. As such, cumulative projects are limited to the intensification or rebuilding of existing primarily residential uses, and the potential seismic retrofitting of 350 Parnassus Avenue building. Cumulative projects occurring outside the campus site would be required to comply with City's Zoning regulations, Planning Code, and would be required to be consistent with the City's General Plan as it pertains to protecting scenic vistas and scenic quality. Moreover, cumulative projects would be limited to 40 feet in height, and therefore would not be visually incompatible or result in adverse effects to the future aesthetic character of these neighborhoods. Therefore, the impact of cumulative development projects, in combination with the CPHP, would be less than significant.

Mitigation: None required.

Impact C-AES-2: Implementation of the CPHP, combined with cumulative projects, would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area. (Less than Significant)

As indicated above, there are no notable on- or off-site cumulative development projects in the campus site vicinity. Cumulative development projects would introduce new sources of light and glare, but would be subject to mirrored and reflective glass controls in Planning Commission Resolution 9212, as well as design guidelines and Planning Code compliance, which would be expected to reduce night-lighting impacts of new development. Therefore, cumulative light and glare impacts would not be substantial or adverse. This impact would be less than significant.

Mitigation: None required.

Impact C-AES-3: Implementation of the CPHP, combined with cumulative projects, would potentially create wind hazards in publicly accessible areas of substantial pedestrian use. (Significant and Unavoidable with Mitigation)

As indicated above, there are no notable off-site cumulative development projects in the campus site vicinity. As for on-site projects, the computational wind assessment accounted for anticipated demolition, as previously approved under the 2014 LRDP but not yet implemented (LPPI, Koret Vision Center, EHS, Surge, Woods and Proctor buildings). Therefore, cumulative effects on pedestrian-level winds would be essentially the same as those of the CPHP, as described above under Impact AES-3. Because the proposed CPHP would be responsible for nearly all of this cumulative impact, and because Impact AES-3 was determined to be significant and unavoidable, the cumulative wind impact would likewise be significant and unavoidable.

Mitigation: Implement CPHP Mitigation Measure AES-4.

Significance after Mitigation: Significant and Unavoidable. As noted above, it cannot be stated with certainty that no wind hazard exceedances would result from cumulative development including the proposed CPHP, and therefore this impact could be significant even with mitigation. Accordingly, this impact would be considered significant and unavoidable with mitigation.

Impact C-AES-4: Implementation of the CPHP, combined with cumulative projects, would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. (Less than Significant)

Cumulative projects are limited to the intensification or rebuilding of existing primarily residential uses and would be required to comply with the City's Zoning regulations and Planning Code, which limits cumulative projects in the vicinity of the campus site to 40 feet in height. Moreover, cumulative projects would be required to comply with Section 295 of the *Planning Code.* Section 295 generally prohibits new structures above 40 feet in height that would cast additional shadows on open space that is under the jurisdiction of the San Francisco Recreation and Park Commission between one hour after sunrise and one hour before sunset, at any time of the year, unless that shadow would not result in a significant adverse impact on the use of the open space. Therefore, cumulative development projects would not be expected to adversely or substantially affect the use and enjoyment of open spaces in the vicinity of the campus site. This impact would be less than significant.

Mitigation: None required.

4.1.4 References

Caltrans, 2020. *Scenic Highways,* https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways/lap-liv-i-scenic-highways-faq2, Accessed June 9, 2020.

Cermak Peterka Petersen (CPP), 2020. *Wind Comfort Study for: UCSF Comprehensive Parnassus Height Plan, San Francisco, CA*. May 29, 2020.

4.2 Air Quality

This section describes and evaluates the potential for the construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and other Initial Phase improvements, to result in significant air quality impacts. This section discusses the existing air quality conditions in the project area, presents the regulatory framework for air quality management, and analyzes the potential for the proposed project to affect existing air quality conditions, both regionally and locally, due to activities that emit criteria and non-criteria air pollutants. It also analyzes the types and quantities of emissions that would be generated on a temporary basis due to proposed construction activities as well as those generated over the long term from the operation of CPHP elements. The analysis determines whether those emissions are significant in relation to applicable air quality standards and identifies feasible mitigation measures for significant adverse impacts. The section also includes an analysis of cumulative air quality impacts. The impact of greenhouse gases (GHG) emissions resulting from potential CPHP development are presented and discussed in Section 4.7, *Greenhouse Gas Emissions*.

The analysis in this section is based on a review of existing air quality conditions in the region and air quality regulations administered by the United States Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and the Bay Area Air Quality Management District (BAAQMD). The analysis utilizes methodologies set forth in the updated BAAQMD *CEQA Air Quality Guidelines* (May 2017). The analysis in this section also summarizes the findings of a Health Risk Assessment and Health Impact Assessment prepared in support of the EIR.

4.2.1 Environmental Setting

Climate and Meteorology

The campus site is in the San Francisco Bay Area Air Basin (SFBAAB). Air quality in the basin is influenced by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. The air basin's moderate climate steers storm tracks away from the region for much of the year, although storms often affect the region from November through April. San Francisco's proximity to the Pacific Ocean and exposure to onshore breezes provides generally very good air quality in the city and at the campus site.

Annual temperatures in the campus site area average in the mid-50s (degrees Fahrenheit), ranging from the low 40s on winter mornings to the mid-70s during summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby San Francisco Bay and the ocean. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from November through April. Precipitation varies widely from year to year as shifts in the annual storm track of a few hundred miles can mean the difference between a very wet year and drought conditions.

Atmospheric conditions such as wind speed and direction, and variable air temperatures interact with the physical features of the landscape to influence the movement and dispersal of air pollutants, regionally. The campus site is within the Peninsula climatological subregion. Marine air traveling through the Golden Gate is a dominant weather factor affecting dispersal of air pollutants within the region. The prevailing wind direction on the San Francisco mainland is from the west at an average annual wind speed of 10.3 miles per hour (WRCC, 2020). At higher temperatures ozone formation can increase.

Ambient Air Quality – Criteria Air Pollutants

As required by the 1970 federal Clean Air Act, the USEPA initially identified six air pollutants that are pervasive in urban environments and for which State and federal health-based ambient air quality standards have been established. USEPA calls these pollutants "criteria air pollutants" because the agency has regulated them by developing specific public-health-based and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead are the six criteria air pollutants originally identified by USEPA. Since that time, subsets of particulate matter have been also identified for which permissible levels have been established. These include particulate matter of 10 microns in diameter or less (PM_{10}) and particulate matter of 2.5 microns in diameter or less ($PM_{2.5}$).

BAAQMD is the regional agency with jurisdiction for regulating air quality within the nine - county SFBAAB. The region's air quality monitoring network provides information on ambient concentrations of criteria air pollutants at various locations in the San Francisco Bay Area. **Table 4.2-1** presents a five-year summary for the period 2014 to 2018 of the highest annual criteria air pollutant concentrations, collected at the air quality monitoring station operated and maintained by BAAQMD at 16th and Arkansas Streets (Potrero Hill), approximately 3 miles east of the campus site. Table 4.2-1 also compares measured pollutant concentrations with the most stringent applicable ambient air quality standards (State or federal). Concentrations shown in bold indicate an exceedance of the standard.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG, also sometimes referred to as volatile organic compounds or VOC by some regulating agencies) and nitrogen oxides (NO_X). The main sources of ROG and NO_X, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

TABLE 4.2-1
SUMMARY OF SAN FRANCISCO AIR QUALITY MONITORING DATA (2014–2018)

Pollutant	Most Stringent Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured[a]				
		2014	2015	2016	2017	2018
Ozone						
- Days 1-Hour Standard Exceeded		0	0	0	0	0
- Maximum 1-Hour Concentration (ppm)	>0.09 ppm[b]	8	9	7	9	7
- Days 8-Hour Standard Exceeded		0	0	0	0	0
- Maximum 8-Hour Concentration (ppm)	>0.07 ppm[c]	7	7	6	5	5
Carbon Monoxide (CO)						
- Days 1-Hour Standard Exceeded		0	0	0	0	0
- Maximum 1-Hour Concentration (ppm)	>20 ppm[b]	1.6	1.8	1.7	2.5	1.9
- Days 8-Hour Standard Exceeded		0	0	0	0	0
- Maximum 8-Hour Concentration (ppm)	>9 ppm[b]	1.2	1.3	1.1	1.4	1.6
Suspended Particulates (PM_{10})						
- Days 24-Hour Standard Exceeded[d]		0	0	0	**2**	0
- Maximum 24-Hour Concentration (µg/m^3)	>50 µg/m^3 [b]	36	47	17	**77**	43
- Annual Average (µg/m^3)	>20 µg/m^3 [b]	17	19	17	**22**	20
Suspended Particulates ($PM_{2.5}$)						
- Days 24-Hour Standard Exceeded		0	0	0	**7**	**14**
- Maximum 24-Hour Concentration (µg/m^3)	>35 µg/m^3	33	35	20	**50**	**177**
- Annual Average (µg/m^3)	>12 µg/m^3 [b, c]	7.7	7.6	7.5	9.7	12
Nitrogen Dioxide (NO_2)						
- Days 1-Hour Standard Exceeded		0	0	0	0	0
- Maximum 1-Hour Concentration (ppm)	>0.1 ppm[c]	8	7	6	7	7

NOTES:

Bold values are in excess of applicable standard.
ppm = parts per million.
µg/m^3 = micrograms per cubic meter.
ND = No data or insufficient data.

[a] Number of days exceeded is for all days in a given year, except for PM_{10}. PM_{10} has been monitored every 12 days effective January 2013.
[b] State standard, not to be exceeded.
[c] Federal standard, not to be exceeded.
[d] Particulate matter is based on a sampling schedule of one out of every six days, for a total of approximately 60 samples per year.

SOURCE: BAAQMD, 2020a. Bay Area Air Pollution Summary, 2014 – 2018. Available online at: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed June 10, 2020.

Table 4.2-1 shows that, according to published data, the most stringent applicable standards for ozone (State 1-hour standard of 0.09 parts per million [ppm] and the federal 8-hour standard of 0.07 ppm) were not exceeded in San Francisco from 2014 through 2018.

Carbon Monoxide (CO)

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. As shown in Table 4.2-1, the more stringent State CO standards were not exceeded from 2014 through 2018. Measurements of CO indicate hourly maximums ranging between 8 percent to 13 percent of the more stringent State standard, and maximum 8-hour CO levels that are approximately 12 percent to 18 percent of the allowable 8-hour standard.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from human-made and natural sources. Particulate matter is measured in two size ranges: PM_{10} and $PM_{2.5}$. In the Bay Area, motor vehicles generate about one-half of the SFBAAB's particulate emissions, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the CARB, studies in the United States and elsewhere "have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks." Studies of children's health in California have demonstrated that particle pollution "may significantly reduce lung function growth in children."(CARB, 2007) CARB also reports that statewide attainment of PM standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.(CARB, 2007) Among the criteria air pollutants that are regulated, particulates appear to represent a serious ongoing health hazard. As long ago as 1999, BAAQMD was reporting in its *CEQA Air Quality Guidelines* that studies had shown that elevated particulate levels contribute to the death of approximately 200 to 500 people per year in the Bay Area. $PM_{2.5}$ is of particular concern because epidemiologic studies have demonstrated that people who live near freeways, especially people who live within 500 feet of freeways or high-traffic roadways, have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children. (SFDPH, 2008)

As presented above in Table 4.2-1, the State 24-hour PM_{10} standard was exceeded on two monitored occasions from 2014 through 2018 in San Francisco, both in 2017. As PM_{10} data are monitored every 12 days by BAAQMD, it may conservatively be estimated that the State 24-hour PM_{10} standard was exceeded on up to 24 days per year from 2014 through 2018.

The State 24-hour $PM_{2.5}$ standard was exceeded on 21 days from 2014 through 2018 in San Francisco: 7 days in 2017 and 14 days in 2018. Many of these exceedances of the 24-hour $PM_{2.5}$ standard can be attributed to the October 2017 and November and December 2018 fires in Northern California. The State annual average standard for PM_{10} was exceeded in 2017 while the federal and State annual average standard for $PM_{2.5}$ was not exceeded from 2014 through 2018.

Nitrogen Dioxide (NO_2)

NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are its main sources. Aside from its contribution to ozone formation, NO_2

can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of the air on high pollution days, especially in conjunction with high ozone levels. The current State one-hour standard for NO_2 (0.18 ppm) is being met in San Francisco. In 2010, the USEPA implemented the current one-hour NO_2 standard (0.10 ppm) (see *Regulatory Framework* below). Currently, the SFBAAB is designated as an attainment area for the NO_2 standard. (U.S. EPA, 2017) As shown in Table 4.2-1, this new federal standard was not exceeded at the San Francisco station from 2014 through 2018.

The USEPA has also established requirements for a new monitoring network to measure NO_2 concentrations near major roadways in urban areas with a population of 500,000 or more. Sixteen new near-roadway monitoring sites are required in California, three of which are in the Bay Area. These monitors are located in Berkeley, Oakland, and San Jose. The Oakland station commenced operation in February 2014, the San Jose station commenced operation in March 2015, and the Berkeley station commenced operation in July 2016. The new monitoring data may result in a need to change area designations in the future. CARB will revise the area designation recommendations, as appropriate, once sufficient monitoring data become available.

Sulfur Dioxide (SO_2)

SO_2 is a colorless, acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease. (BAAQMD, 2017a) Pollutant trends suggest that the SFBAAB currently meets and will continue to meet the State standard for SO_2 for the foreseeable future.

In 2010, the USEPA set a new one-hour SO_2 standard (see *Regulatory Framework*, below). The USEPA initially designated the SFBAAB as an attainment area for SO_2. Similar to the new federal standard for NO_2, the USEPA established requirements for a new monitoring network to measure SO_2 concentrations beginning in January 2013. (USEPA, 2010) No additional SO_2 monitors are required for the Bay Area because BAAQMD jurisdiction has never been designated as non-attainment for SO_2 and no state implementation plans or maintenance plans have been prepared for SO_2. (BAAQMD, 2013)

Lead

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses, cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, which put children at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated.

Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California. On October 15, 2008, the USEPA strengthened the national ambient air quality standard for lead by lowering it from 1.50 $\mu g/m^3$ to 0.15 $\mu g/m^3$ on a rolling three-month average. The USEPA revised the monitoring requirements for lead in December 2010. (USEPA, 2010) These requirements focus on airports and large urban areas resulting in an increase in 76 monitors nationally. Lead monitoring stations in the Bay Area are located at Palo Alto Airport, Reid-Hillview Airport (San Jose), and San Carlos Airport. Non-airport locations for lead monitoring are in Redwood City and San Jose.

Air Quality Index

The USEPA developed the Air Quality Index (AQI) scale to make the public health impacts of air pollution concentrations easily understandable. The AQI, much like an air quality "thermometer," translates daily air pollution concentrations into a number on a scale between 0 and 500. The numbers in the scale are divided into six color-coded ranges, with numbers 0 through 500 as outlined below.

- Green (0-50) indicates "good" air quality. No health impacts are expected when air quality is in the green range.
- Yellow (51-100) indicates air quality is "moderate." Unusually sensitive people should consider limiting prolonged outdoor exertion.
- Orange (101-150) indicates air quality is "unhealthy for sensitive groups." Active children and adults, and people with respiratory disease, such as asthma, should limit outdoor exertion.
- Red (151-200) indicates air quality is "unhealthy." Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
- Purple (201-300) indicates air quality is "very unhealthy." Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit outdoor exertion.
- Maroon (301-500) indicates air quality is "hazardous." This would trigger health warnings of emergency conditions, and the entire population is more likely to be affected.

The AQI numbers refer to specific amounts of pollution in the air. They are based on the federal air quality standards for ozone, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. In most cases, the federal standard for these air pollutants corresponds to the number 100 on the index chart. Thus, if the concentration of any of these pollutants rises above its respective standard, the air quality can be unhealthy for the public. In determining the air quality forecast, local air districts, including BAAQMD, use the anticipated concentration measurements for each of the major pollutants, convert them into index numbers, and determine the highest index for each zone in a district.

Readings below 100 on the AQI scale would not typically affect the health of the general public. Levels above 300 rarely occur in the United States. Index statistics over recent years indicate that air quality in the Bay Area is predominantly in the "Good" or Moderate" categories and is healthy on most days for most people.

Historical air district data indicate that the SFBAAB experienced air quality in the red level (unhealthy) on 13 days between the years 2013 and 2017. The October 2017 fires in Northern California resulted in the federal 24-hour $PM_{2.5}$ standard being exceeded on up to seven days just in the first part of the month of October 2017 in certain counties. (BAAQMD, 2020) Even though the air district's data have not been validated yet, these levels of $PM_{2.5}$ in many counties have been the highest levels recorded in recent times. As a result, the index in several neighboring counties reached the "very unhealthy" designation, ranging from values of 201 to 300. During that period, the air district issued "Spare the Air" alerts and recommended that individuals stay inside with windows closed and refrain from significant outdoor activity. However, this was an extraordinary event and is a rare occurrence in the Bay Area.

As shown in **Table 4.2-2**, the basin had a total of 17 orange-level (unhealthy for sensitive groups) days in 2015, 13 days in 2016, 9 days in 2017, 8 days in 2018, and 10 days in 2019. The air basin experienced a total of 19 red-level (unhealthy) days, occurring in 2016 to 2018. In 2017 and 2018, the air basin experienced a total of 8 purple-level (very unhealthy) days. California wildfires contributed to the relatively high number of unhealthy days in 2017 and 2018.

TABLE 4.2-2
AIR QUALITY INDEX STATISTICS FOR THE SAN FRANCISCO BAY AREA AIR BASIN

Air Quality Index Statistics for San Francisco Bay Area Air Basin	Number of Days by Year				
	2015	2016	2017	2018	2019
Unhealthy for Sensitive Groups (Orange)	17	13	9	8	10
Unhealthy (Red)	0	2	9	8	0
Very Unhealthy (Purple)	0	0	3	5	0

SOURCE: Bay Area Air Quality Management District, 2020

Toxic Air Contaminants and Local Health Risks and Hazards

In addition to criteria air pollutants, individual projects may emit *toxic air contaminants* (TACs). TACs collectively refer to a diverse group of air pollutants that may cause chronic (i.e., of long duration) and acute (i.e., severe but short-term) adverse effects on human health, including carcinogenic effects. Human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Thus, individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs are not subject to ambient air quality standards but are regulated by BAAQMD using a risk-based approach to determine which sources and which pollutants to control as well as the degree of control. A *health risk assessment* (HRA) is an analysis that estimates human health exposure to toxic substances, and when considered together with information regarding the toxic potency of the substances, a HRA provides quantitative estimates of health risks.[1]

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[1] In general, a health risk assessment is required if BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. The applicant is then subject to a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, estimating the increased risk of cancer as a result of exposure to one or more TACs.

Exposures to fine PM ($PM_{2.5}$) are strongly associated with mortality, respiratory diseases, and poor lung development in children, and other health effects, such as hospitalization for cardiopulmonary disease. (SFDPH, 2008) Diesel particulate matter (DPM), a byproduct of diesel fuel combustion, is also of concern. CARB identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans. (CARB, 1998) The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

San Francisco Modeling of Toxic Air Pollutant Exposure Zones

In an effort to identify areas of San Francisco most adversely affected by sources of TACs and elevated concentrations of particulate matter, the City and County of San Francisco partnered with BAAQMD to inventory and assess air pollution exposure from vehicles, stationary sources, and area sources within San Francisco. Citywide dispersion modeling was conducted using AERMOD[2] to assess the emissions from the following primary sources: vehicles on local roadways, permitted stationary sources, port and maritime sources, and diesel emissions from Caltrain. Emissions of PM_{10} (DPM is assumed equivalent to PM_{10}), $PM_{2.5}$, and total organic gases[3] (TOGs) were modeled on a 20 by 20–meter receptor grid covering the entire city. The citywide modeling results represent a comprehensive assessment of existing cumulative exposures to air pollution throughout the city. The methodology and technical documentation for modeling citywide air pollution are available in a recently updated draft document entitled *San Francisco Citywide Health Risk Assessment: Technical Support Documentation*. (SFDPH, 2020)

Modeling results were used to identify areas in the city with poor air quality, which are designated as the *Air Pollutant Exposure Zone* (APEZ), based on the following health-protective criteria: (1) cumulative $PM_{2.5}$ concentrations greater than 10 $\mu g/m^3$ and/or (2) excess cancer risk from the contribution of emissions from all modeled sources greater than 100 per one million persons exposed.

An additional health vulnerability layer was incorporated in the APEZ for those San Francisco ZIP codes in the worst quintile of Bay Area Health Vulnerability scores (ZIP Codes 94102, 94103, 94105, 94124, and 94130). In these areas, the standard for identifying areas as being within the zone were lowered to: (1) excess cancer risk from the contribution of emissions from all modeled sources greater than 90 per one million persons exposed and/or (2) cumulative $PM_{2.5}$ concentrations greater than 9 $\mu g/m^3$.

Lastly, all parcels within 500 feet of a major freeway were also included in the APEZ, consistent with findings in CARB's Air Quality and Land Use Handbook: A Community Health Perspective, which suggests air pollutant levels decrease substantially at approximately 500 feet from a freeway. (CAR, 2005)

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[2] AERMOD is the USEPA's preferred or recommended steady state air dispersion plume model. For more information on AERMOD and to download the AERMOD Implementation Guide, *https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models,* accessed February 12, 2019.

[3] Total organic gases (TOGs) is a broad descriptor that is inclusive of organic TACs beyond those identified as reactive organic gases (ROG).

The most recent citywide modeling results indicate that the Parnassus Heights campus site and its surrounding area are not located within an APEZ, or a health vulnerable zip code. The nearest APEZ to the Project area is along Lincoln Way, west of 5th Avenue.

Fine Particulate Matter

In April 2011, USEPA published Policy Assessment for the Particulate Matter Review of the National Ambient Air Quality Standards (Particulate Matter Policy Assessment). In this document, USEPA staff concluded that the then-current federal annual $PM_{2.5}$ standard of 15 $\mu g/m^3$ should be revised to a level within the range of 13 to 11 $\mu g/m^3$, with evidence strongly supporting a standard within the range of 12 to 11 $\mu g/m^3$. The APEZs for San Francisco are based on the health protective $PM_{2.5}$ standard of 11 $\mu g/m^3$, as supported by the USEPA's Particulate Matter Policy Assessment, although lowered to 10 $\mu g/m^3$ to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

Excess Cancer Risk

The 100 per one million persons exposed (100 excess cancer risk) criterion discussed above in the "San Francisco Modeling of Air Pollution Exposure Zones" section is based on USEPA guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level. (BAAQMD, 2009) As described by BAAQMD, USEPA considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking,[4] USEPA states that it "… strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million and (2) limiting to no higher than approximately one in ten thousand [100 in 1 million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years." The 100 per million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on air district regional modeling. (BAAQMD, 2009)

In addition to monitoring criteria pollutants, both BAAQMD and CARB operate TAC monitoring networks in the SFBAAB. These stations measure 10 to 15 TACs, depending on the specific station. The TACs selected for monitoring are those that traditionally have been found in the highest concentrations in ambient air and therefore tend to produce the most significant risk. The nearest air district ambient TAC monitoring station to the project area is the station at 10 Arkansas Street in San Francisco. The ambient concentrations of carcinogenic TACs measured at the Arkansas Street station, approximately 3 miles northeast of the campus site, are presented in **Table 4.2-3**. The estimated cancer risk from a lifetime exposure (70 years) to these substances is also reported in the table. When TAC measurements at this station are compared to ambient concentrations of various TACs for the Bay Area as a whole, the cancer risks associated with mean TAC concentrations in San Francisco are similar to those for the Bay Area as a whole. Therefore, the estimated average

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[4] 54 *Federal Register* 38044, September 14, 1989.

lifetime cancer risk resulting from exposure to TAC concentrations monitored at the San Francisco station do not appear to be any greater than for the Bay Area as a region.

TABLE 4.2-3
2017 ANNUAL AVERAGE AMBIENT CONCENTRATIONS OF CARCINOGENIC TOXIC AIR CONTAMINANTS MEASURED AT BAAQMD MONITORING STATION, 10 ARKANSAS STREET, SAN FRANCISCO

Substance	Concentration	Cancer Risk per Million[a]
Gaseous TACs (ppb)		
Acetaldehyde	0.69	10
Benzene	0.216	56
1,3-Butadiene	0.036	39
Carbon Tetrachloride[b]	0.093	71
Formaldehyde	1.64	35
Perchloroethylene	0.009	1
Methylene Chloride	0.114	1
Chloroform	0.028	2
Trichloroethylene	0.010	0.3
Particulate TACs (ng/m^3)		
Chromium (Hexavalent)b	0.078	32
Total Risk for All TACs		**248.3**

NOTES:

TACs = toxic air contaminants; ppb = part per billion; ng/m^3 = nanograms per cubic meter.

[a] Cancer risks were estimated by applying published unit risk values to the measured concentrations.
[b] 2016 data provided for this substance as 2017 data was insufficient per CARB.

SOURCE: CARB, Ambient Air Toxics Summary – 2017, http://www.arb.ca.gov/adam/toxics/sitesubstance.html, accessed February 12, 2019.

Roadway-Related Pollutants

Motor vehicles are responsible for a large share of air pollution, especially in California. Vehicle tailpipe emissions contain diverse forms of particles and gases, and vehicles also contribute to particulates by generating road dust and tire wear. Epidemiologic studies have demonstrated that people living close to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections, and decreased pulmonary function and poor lung development in children. Air pollution monitoring conducted in conjunction with epidemiologic studies has confirmed that roadway-related health effects vary with modeled exposure to PM and NO_2. In traffic-related studies, the additional noncancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest within 300 feet. (CARB, 2005) As a result, CARB recommends that new sensitive land uses not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day. The campus site is not located within 500 feet of a freeway or a busy roadway.

Diesel Particulate Matter (DPM)

CARB identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways. The board estimated that as of 2000, the average Bay Area cancer risk from exposure to DPM, based on a population-weighted average ambient DPM concentration, is approximately 480 in one million, which is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The statewide risk from DPM as determined by the board declined from 750 in one million in 1990 to 570 in one million in 1995; by 2012, the board estimated the average statewide cancer risk from DPM at 520 in one million. (CARB, 2009), (CARB, 2019)

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Subsequent board regulations apply to new trucks and diesel fuel. With new controls and fuel requirements, 60 trucks built in 2007 would have the same particulate exhaust emissions as one truck built in 1988. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Despite notable emission reductions, the board recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. The board notes that these recommendations are advisory and should not be interpreted as defined "buffer zones," and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, CARB's position is that infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level. (CARB, 2005)

Studies have demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Individual cancer risk is the likelihood that a person exposed to air toxic concentrations over a 30-year period will contract cancer, based on the use of standard risk-assessment methodology. The maximally exposed individual (MEI) represents the worst–case risk estimate, based on a theoretical person continuously exposed for a lifetime at the point of highest compound concentration in the air. This is a highly conservative assumption, since most people do not remain at home all day and on average residents change residences every 11 to 12 years. In addition, this methodology assumes that residents are experiencing outdoor concentrations for the entire exposure period.

Soil Contamination and Naturally Occurring Asbestos

San Francisco is among the identified counties where ultramafic bedrock materials are present. These bedrock materials contain naturally occurring asbestos particles or fibers, which could be disturbed during excavation activities. As discussed in Section 4.8, *Hazards and Hazardous Materials*, the campus site appears to be located east of any mapped ultramafic bedrock units for the City of San Francisco or where reported asbestos occurrences have been mapped. Please also see Impact HAZ-1 in Section 4.8, which includes mitigation to ensure that earthwork activities associated with construction of new development on the campus site under the CPHP would not expose workers or the public to naturally occurring asbestos, if present.

Sensitive Receptors

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include: the elderly and the young; population subgroups with higher rates of respiratory disease, such as asthma and chronic obstructive pulmonary disease; and populations with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. BAAQMD defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, day care centers, hospitals, and senior-care facilities. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration (OSHA) to ensure the health and well-being of their employees (BAAQMD, 2011b).

The proximity of sensitive receptors to motor vehicles is an air pollution concern, especially in San Francisco where building setbacks are limited and roadway volumes are higher than most other parts of the Bay Area. Vehicles also contribute to particulates by generating road dust and through tire wear.

On the Parnassus Heights campus site, existing sensitive receptors include UCSF campus housing on Third and Fifth Avenues, on Irving Street, and the Aldea Housing complex located in the southeast portion of the campus site. Two child care centers are located within the campus site (Kirkham Child Development Center at 10 Kirkham Street, and the UCSF Marilyn Reed Lucia Child Development Center at 610 Parnassus Avenue). Moffitt and Long Hospitals are also sensitive receptors.

Off-campus receptors (residences) abut the western, northern and southern campus site boundaries while residences to the east are buffered by varying depths of open space. There are also three public schools (Independence High School, Grattan Elementary, and Clarendon Alternative Elementary), and a number of child care centers (Stepping Stones Preschool, Haight Ashbury Community Nursery School, and ABC Bay Area Child Care) located within a quarter mile of the campus site.

Existing Stationary Sources of Air Pollution

The BAAQMD inventory of permitted stationary sources of emissions identifies one permitted operator of stationary emissions (UCSF) present within or near the 1,000-foot zone of influence of the Parnassus Heights campus site. UCSF operates 21 permitted air pollution sources on the campus site. These sources, listed in **Table 4.2-4**, are primarily stationary diesel engines for back-up power generators, combustion turbines, boilers and duct burners.

TABLE 4.2-4
STATIONARY SOURCES AT THE PARNASSUS HEIGHTS CAMPUS SITE

Source #	Facility Type	Source #	Facility Type
2478	UCSF source #9: Gas turbine generator	2478	UCSF source #21: Diesel generator
2478	UCSF source #10: Duct burner for heat recovery	2478	UCSF source #26: Diesel generator
2478	UCSF source #11: Gas turbine generator	2478	UCSF source #27: Diesel generator
2478	UCSF source #12:Duct burner for heat recovery	2478	UCSF source #30: Diesel generator
2478	UCSF source #13: Auxiliary boiler	2478	UCSF source #32: Diesel generator
2478	UCSF source #14: Auxiliary boiler	2478	UCSF source #33: Diesel generator
2478	UCSF source #16: Diesel generator	2478	UCSF source #34: Diesel generator
2478	UCSF source #17: Diesel generator	2478	UCSF source #35: Diesel generator
2478	UCSF source #18: Diesel generator	2478	UCSF source #36: Diesel generator
2478	UCSF source #19: Diesel generator	2478	UCSF source #37: ETO Sterilizer
2478	UCSF source #20: Diesel generator		

SOURCE: BAAQMD, 2019a.

Major Roadways Contributing to Air Pollution

In the City of San Francisco, Parnassus Avenue and Seventh Avenue are arterial streets in the existing local roadway system within the 1,000-foot zone of influence that have at least 10,000 vehicles in annual average daily traffic based on the City's SF CHAMP roadway model (SFCTA, 2015). This traffic contributes to elevated concentrations of $PM_{2.5}$, DPM, and other contaminants emitted from motor vehicles near the street level. There are no freeways within 1,000 feet. The APEZ, which includes both stationary and roadway sources, indicates that roadways around the campus site are not substantial contributors to localized cancer risks or $PM_{2.5}$ concentrations (SFDPH, 2020).

4.2.2 Regulatory Considerations

Federal Regulations

The 1970 Clean Air Act (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all standards by the deadlines specified in the act. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards before adverse health effects are observed.

Table 4.2-5 summarizes current State and federal ambient air quality standards and attainment status for the SFBAAB. In general, the SFBAAB experiences low concentrations of most pollutants when compared to federal standards, except for ozone and particulate matter (PM_{10} and $PM_{2.5}$), for which standards are exceeded periodically (see Table 4.2-1).

TABLE 4.2-5
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SAN FRANCISCO BAY AREA AIR BASIN

		State (SAAQS[a])		**Federal (NAAQS[b])**	
Pollutant	**Averaging Time**	**Standard**	**Attainment Status**	**Standard**	**Attainment Status**
Ozone	1-hour	0.09 ppm	**N**	NA	See Note c
	8-hour	0.070 ppm	**N**	0.070 ppm[d]	**N**/Marginal
Carbon Monoxide (CO)	1-hour	20 ppm	A	35 ppm	A
	8-hour	9 ppm	A	9 ppm	A
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	NA	0.053 ppm	A
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	A	0.075 ppm	A
	24-hour	0.04 ppm	A	0.14 ppm	A
	Annual	NA	NA	0.03 ppm	A
Particulate Matter (PM_{10})	24-hour	50 µg/m^3	**N**	150 µg/m^3	U
	Annual[e]	20 µg/m^3 [f]	**N**	NA	NA
Fine Particulate Matter ($PM_{2.5}$)	24-hour	NA	NA	35 µg/m^3	**N**
	Annual	12 µg/m^3	**N**	12 µg/m^3	U/A
Sulfates	24-hour	25 µg/m^3	A	NA	NA
Lead	30-day	1.5 µg/m^3	A	NA	NA
	Cal. Quarter	NA	NA	1.5 µg/m^3	A
	Rolling 3-month average	NA	NA	0.15	U
Hydrogen Sulfide	1-hour	0.03 ppm	U	NA	NA
Visibility-Reducing Particles	8-hour	See Note g	U	NA	NA

NOTES:

A = Attainment; **N** = Non-attainment; U = Unclassified; NA = Not Applicable, no applicable standard; ppm = parts per million; µg/m^3 = micrograms per cubic meter.

[a] SAAQS = State ambient air quality standards (California). SAAQS for ozone, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2, PM, and visibility-reducing particles are values that are not to be exceeded. All other State standards shown are values not to be equaled or exceeded.

[b] NAAQS = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile is less than the standard.

[c] The U.S. Environmental Protection Agency (EPA) revoked the national 1-hour ozone standard on June 15, 2005.

[d] This Federal 8-hour ozone standard was approved by USEPA in October 2015 and became effective on December 28, 2015.

[e] State standard = annual geometric mean; national standard = annual arithmetic mean.

[f] In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

[g] Statewide visibility-reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

SOURCES: Bay Area Air Quality Management District, Standards and Attainment Status, 2017, *http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status*, accessed August 8, 2019.; USEPA National Ambient Air Quality Standards, 2016. Available online at https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed August 8, 2019.

In June 2004, the Bay Area was designated as a marginal nonattainment area of the national 8-hour ozone standard.[5] The USEPA lowered the national 8-hour ozone standard from 0.80 to 0.75 parts ppm effective May 27, 2008. In October 2015, the USEPA designated the Bay Area as a marginal nonattainment region for the 0.70 ppm ozone standard established in 2015. The SFBAAB is in attainment for other criteria pollutants, with the exception of the 24-hour standards for $PM_{2.5}$, for which the Bay Area is designated as "Unclassified." "Unclassified" is defined by the Clean Air Act as any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

On January 9, 2013, USEPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This USEPA rule suspends key State Implementation Plan (discussed below) requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this USEPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "re-designation request" and a "maintenance plan" to USEPA, and USEPA approves the proposed re-designation.

State Regulations

Although the federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the unique meteorological problems in California, there is considerable diversity between the State and national ambient air quality standards, as shown in Table 4.2-5. California ambient standards tend to be at least as protective as national ambient standards and are often more stringent.

In 1988, California passed the California Clean Air Act (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on State ambient air quality standards rather than the federal standards. As indicated in Table 4.2-5, the SFBAAB is designated as "nonattainment" for State ozone (both 1-hour and 8-hour standards), PM_{10}, and $PM_{2.5}$ standards. The SFBAAB is designated as "attainment" for other pollutants.

Off-Road Emissions Regulation for Compression-Ignition Engines and Equipment

Engines designated as nonroad engines by USEPA are known as off-road engines in California State regulations implemented by CARB. Similar to the USEPA Nonroad Diesel Rule, the Off-Road Emissions Regulation for New Compression-Ignition Engines and Equipment applies to diesel engines such as those found in construction, general industrial, and terminal equipment. Initially adopted in 2000 and amended in 2004, the regulation establishes Tier emission standards, test procedures, and warranty and certification requirements. For some model years and engine size, the CARB Tier emission standards are more stringent than the USEPA standards.

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[5] "Marginal nonattainment area" means an area designated marginal nonattainment for the 1-hour national ambient air quality standard for ozone.

CARB In-Use Off-Road Diesel Vehicle Regulation

In July 2007, CARB adopted the In-Use Off-Road Diesel Vehicle Regulation and amended it in December 2011. The regulation requires owners of off-road mobile equipment powered by diesel engines 25 horsepower (HP) or larger to meet the fleet average or best available control technology (BACT) requirements for NO_X and PM emissions by January 1 of each year. The regulation also establishes idling restrictions, limitations on buying and selling older off-road diesel vehicles (Tier 0), reporting requirements, and retrofit and replacement requirements. The requirements and compliance dates vary by fleet size, with performance requirements for large fleets beginning in 2014, medium fleets in 2017, and small fleets in 2019. Requirements regarding idling, disclosure, reporting, and labeling took effect in 2008 and 2009. The Diesel Off-road On-line Reporting System is an online tool designed to help fleet owners report their off-road diesel vehicle inventories and actions taken to reduce vehicle emissions to CARB, as required by the In-Use Off-Road Diesel Vehicle Regulation.

Regional and Local Regulations

Bay Area Air Quality Management District

BAAQMD is the regional agency with jurisdiction over the nine-county region located in the SFBAAB. The Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also participate in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs. BAAQMD is responsible for attaining and/or maintaining air quality in the region within federal and State air quality standards. Specifically, BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the region and to develop and implement strategies to attain the applicable federal and State standards.

BAAQMD does not have authority to regulate emissions from motor vehicles. Specific rules and regulations adopted by BAAQMD limit the emissions that can be generated by various stationary sources, and identify specific pollution reduction measures that must be implemented in association with various activities. These rules regulate not only emissions of the six criteria air pollutants, but also TAC emissions sources. Stationary sources are regulated through BAAQMD's permitting process and standards of operation. Through this permitting process, including an annual permit review, BAAQMD monitors the generation of stationary emissions and uses this information in developing its air quality plans. Any sources of stationary emissions constructed as part of the project would be subject to the BAAQMD Rules and Regulations. Both federal and State ozone plans rely heavily upon stationary source control measures set forth in BAAQMD's Rules and Regulations.

Per its Policy and Procedure Manual, BAAQMD requires implementation of Best Available Control Technology for Toxics and would deny an *Authority to Construct* or a *Permit to Operate* for any new or modified source of TACs that exceeds a cancer risk of 10 in one million or a chronic or acute hazard index of 1.0. The permitting process under BAAQMD Regulation 2

Rule 5 requires a Health Risk Screening Analysis, the results of which are posted on the District's website. These permitting requirements would ensure that the health risks of the project on the environment would be less than significant.

BAAQMD has also identified a series of Best Management Practices for the control of fugitive dust generated during construction activities. These measures, which focus on reducing dust generated by excavation, material movement and movement of off-road equipment on unpaved surfaces are considered sufficient to reduce dust-related impacts to a less than significant level (BAAQMD, 2017a).

Bay Area Air Quality Planning Relative to State and Federal Standards

For State air quality planning purposes, the SFBAAB is classified as a serious non-attainment area for the 1-hour ozone standard. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the BAAQMD update the Clean Air Plan every three years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data (Sections 40924 and 40925 of the California Health and Safety Code). The Bay Area's record of progress in implementing previous measures must also be reviewed. The plans for the air basin are prepared with the cooperation of the MTC and ABAG.

In April 2017, the air district adopted the *2017 Clean Air Plan* whose primary goals are to protect public health and to protect the climate (BAAQMD, 2017b). The plan includes a wide range of proposed control measures to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The *2017 Clean Air Plan* updates the *Bay Area 2010 Clean Air Plan* and complies with State air quality planning requirements as codified in the California Health and Safety Code (although the 2017 plan was delayed beyond the 3-year update requirement of the code). The SFBAAB is designated non-attainment for both the 1- and 8-hour State ozone standards. In addition, emissions of ozone precursors in the air basin contribute to air quality problems in neighboring air basins. Under these circumstances, State law requires the Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and to reduce the transport of ozone precursors to neighboring air basins.

The 2017 Clean Air Plan contains 85 measures to address reduction of several pollutants: ozone precursors, particulate matter, air toxics, and GHGs. Other measures focus on a single type of pollutant, potent GHGs such as methane and black carbon that consists of harmful fine particles that affect public health. These control strategies are grouped into the following categories:

- Stationary Source Measures;
- Transportation Control Measures;
- Energy Control Measures;
- Building Control Measures;
- Agricultural Control Measures;
- Natural and Working Lands Control Measures;

- Waste Management Control Measures;
- Water Control Measures; and
- Super GHG Control Measures.

Under the California Clean Air Act, BAAQMD is required to develop an air quality attainment plan for criteria pollutants that are designated as non-attainment within the air basin. Several project components may be subject to BAAQMD rules and regulations governing criteria pollutants, TACs, and odorous compounds, even though permits may not be required. Stationary sources, such as generators, are required to have permits from BAAQMD before constructing, changing, or operating the source. If the project is subject to BAAQMD permit requirements, the sources would need to comply with BAAQMD Regulation 2 and proceed through the two-stage Authority to Construct and Permit to Operate process.

UCSF

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP campus-wide objective relates to air quality:

Campus-Wide Objectives

1. **Respond to City and Community Context**
    F. Consider neighborhood and city-wide impacts related to UCSF's physical growth.

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Environmental Planning and Safety

EP3. Meet or exceed city, state, and federal standards with respect to health and safety, noise and construction-related environmental impacts.

City of San Francisco

Pursuant to the University of California's constitutional autonomy, development and uses on property owned or leased by the University that are in furtherance of the University's educational purposes are not subject to local land use regulation, including the City and County's General Plan. However, UCSF reviews local general plan policies as planning guidelines and has included the objectives of the Air Quality Element in this Draft EIR.

San Francisco General Plan Air Quality Element

The *San Francisco General Plan* (General Plan) includes the 1997 Air Quality Element. The objectives specified by the City include the following:

***Objective 1*:** Adhere to state and federal air quality standards and regional programs.

Objective 2**:** Reduce mobile sources of air pollution through implementation of the Transportation Element of the General Plan.

Objective 3**:** Decrease the air quality impacts of development by coordination of land use and transportation decisions.

Objective 4**:** Minimize particulate matter emissions from road and construction sites.

Objective 5**:** Link the positive effects of energy conservation and waste management to emission reductions.

4.2.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification projects and other Initial Phase improvements:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

c) Expose sensitive receptors to substantial pollutant concentrations.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

e) Exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.

With respect to criterion (a), the analysis below in Impact AIR-4 applies qualitative BAAQMD guidance thresholds that lead agencies should consider three questions in assessing consistency with the 2017 CAP: (1) Would the project support the primary goals of the Clean Air Plan? (2) Does the project include applicable control measures from the Clean Air Plan? and (3) Does the project disrupt or hinder implementation of control measures identified in the Clean Air Plan?

With respect to criterion (b), the analysis below applies BAAQMD significance criteria identified in Table 4.2-6 for assessment of construction-related impacts of criteria air pollutants emissions in Impact AIR-1 and operational criteria air pollutant emissions in Impact AIR-2.

With respect to criteria (c) and (e) above, the analysis in Impact AIR-3 and Impact AIR-4 apply BAAQMD significance criteria for health risks and hazards.

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topic for the reasons described below:

- ***Odors.*** The proposed CPHP would not include development of land uses identified by BAAQMD as typically associated with odors, such as wastewater treatment plants, landfills, composting facilities, refineries, or chemical plants. As the proposed CPHP would not result in development that would be a potential source of odors.

Analysis Methodology

Air quality analysis conducted for this impact assessment employs the emission factors, models and tools distributed by a variety of agencies including CARB, the California Air Pollution Officers Association (CAPCOA), the California Office of Environmental Health Hazard Assessment (OEHHA) and USEPA. Additionally, the analysis follows methodologies identified in the BAAQMD *CEQA Air Quality Guidelines* (May 2017).

BAAQMD has developed separate guidelines for assessing the air quality impacts for projects and plans under CEQA. The air quality impacts of the proposed overall CPHP are analyzed at the plan-level, while those from the construction and operation of the proposed Irving Street Arrival, RAB and initial Aldea Housing Densification projects and other Initial Phase improvements are analyzed at a project level. The methodology below describes the approach employed for the proposed CPHP and the three Initial Phase projects and other Initial Phase improvements.

In general, implementation of the proposed CPHP would result in two types of air quality impacts. First, the CPHP would result in air pollution through construction activity. Second, the new development under the CPHP would generate operational air pollutants, due to increased vehicle travel and new stationary sources (e.g., laboratory fume hoods, boilers, and emergency generators). This section describes the methodology used to evaluate project impacts related to consistency with the Clean Air Plan, emissions of criteria pollutants, and local health risks and hazards. Each of these types of direct impacts are in turn separated into impacts from criteria air pollutant emissions, which are generally regional in nature, and impacts associated with exposure to TACs and $PM_{2.5}$, which is a localized health risk.

Thresholds for Evaluating Criteria Air Pollutant Impacts

As described above under Regulatory Framework, the SFBAAB experiences low concentrations of most pollutants when compared to federal or State standards and is designated as either in attainment or unclassified for most criteria pollutants, with the exception of ozone, $PM_{2.5}$, and PM_{10}, for which these pollutants are designated as non-attainment for either the State or federal standards.

By definition, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions are considered to contribute to the existing, cumulative air quality conditions. If a project's contribution to cumulative air quality conditions is considerable, then the project's impact on air quality would be considered significant (BAAQMD, 2017a).

Table 4.2-6 identifies criteria air pollutant significance thresholds for project-level analysis followed by a discussion of each threshold. Projects that would result in criteria pollutant emissions below these significance thresholds would not result in a cumulatively considerable net increase in criteria air pollutants within the SFBAAB.

TABLE 4.2-6
CRITERIA AIR POLLUTANT THRESHOLDS

Pollutant	Construction Thresholds Average Daily Emissions (pounds per day)	Operational Thresholds	
		Average Daily Emissions (pounds per day)	Maximum Annual Emissions (tons per year)
ROG	54	54	10
NOx	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive Dust[a]	Construction Dust Ordinance or other Best Management Practices	Not applicable	

NOTE:

[a] Fugitive dust is a specific subset of non-exhaust generated particulate emissions that are generated by material process activity such as rock crushing or result from open transport, storage, and transfer of raw, intermediate, and waste aggregate materials, and nonindustrial sources such as unpaved roads and parking lots, paved streets and highways, heavy construction activities, and agricultural tilling.

SOURCE: BAAQMD, CEQA Air Quality Guidelines. June 2017.

The potential for a project to result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard is based on the State and federal Clean Air Acts emissions limits for stationary sources. To ensure that new stationary sources do not cause or contribute to a violation of an air quality standard, BAAQMD Regulation 2, Rule 2 requires that any new source that emits criteria air pollutants above a specified emissions limit must offset those emissions. For ozone precursors ROG and NO_X, the offset emissions level is an annual average of 10 tons per year [or 54 pounds (lbs.) per day] (BAAQMD, 2017a). These levels represent emissions below which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants that could result in increased health effects.

The federal New Source Review (NSR) program was created under the federal Clean Air Act to ensure that stationary sources of air pollution are constructed in a manner that is consistent with attainment of federal health-based ambient air quality standards. For PM_{10} and $PM_{2.5}$, the emissions limit under NSR is 15 tons per year (82 lbs. per day) and 10 tons per year (54 lbs. per day), respectively. These emissions limits represent levels at which a source is not expected to have a significant impact on air quality (BAAQMD, 2017a).

Although the regulations specified above apply to new or modified stationary sources, land use development projects generate ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions as a result of increases in vehicle trips, energy use, architectural coating, and construction activities. Therefore, the identified thresholds can be applied to the construction and operational phases of land use projects. Those projects that would result in emissions below these thresholds would not be considered to contribute to an existing or projected air quality violation or result in a considerable net increase in ozone precursors or particulate matter. Due to the temporary nature of construction activities, only the average daily thresholds are applicable to construction phase emissions.

Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of best management practices (BMPs) at construction sites substantially control fugitive dust (WRAP, 2006) and individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to 90 percent (BAAQMD, 2009). BAAQMD has identified a number of BMPs to control fugitive dust emissions from construction activities (BAAQMD, 2017a). This analysis assumes that UCSF would implement all BAAQMD BMPs for individual construction projects, which is the basis for determining the significance of air quality impacts due to fugitive dust emissions.

Approach to Estimating Construction-Phase Criteria Pollutant Emissions

CPHP

The CPHP includes both Initial Phase and Future Phase projects. However, specific details regarding year of construction or phasing of construction for Future Phase projects are not currently available to perform a full quantitative assessment of all elements of the CPHP. BAAQMD guidelines do not provide a specific methodology for assessing construction-related impacts at the Plan level. Without specific information with respect to year of construction or the phasing sequence, a quantitative analysis of construction emissions of Future Phase projects under the CPHP is not feasible. Therefore, a qualitative analysis is provided for the assessment of construction-related impacts of the CPHP that considers the result of the quantitative assessment of impacts associated with the Initial Phase projects as a proxy for impact assessment of Future Phase projects, acknowledging that in the future years, the fleet of construction-related equipment will be cleaner due to existing regulations and the turn-over of equipment with higher emission rates. If warranted by this qualitative assessment, mitigation measures are identified and were developed from a menu of measures published by BAAQMD.

While the proposed New Hospital is a CPHP Initial Phase project, it is generally considered programmatically in this EIR because adequate details of that project are not available at this time for a project-level analysis. However, given that construction of proposed New Hospital would be concurrent with the other Initial Phase projects, construction emissions associated with the New Hospital were estimated based on the amount of demolition anticipated and the amount of building space that would be constructed. Accordingly, the combined construction emissions of four Initial Phase projects are considered in this assessment for construction-related impacts.

Initial Phase Projects

Construction emissions from the demolition and construction activities associated with the proposed Irving Street Arrival, RAB and initial Aldea Housing Densification projects, and New Hospital, were estimated using the CalEEMod (version 2016.3.2). For each year of construction

(2021 through 2030), the highest average daily emissions were calculated and compared to the BAAQMD thresholds.

Approach to Estimating Operational Criteria Pollutant Emissions

CPHP

For assessment of operational impacts from criteria pollutants there are two important data points that can be used to estimate the increase in emissions from the full build out under the CPHP in 2050. First, the developed square footage under existing and full build out conditions may be used to estimate increases in area source and energy source emissions. Existing emissions from the Central Utility Plant (CUP) as estimated by BAAQMD are scaled based on the increase in developed square feet. Secondly the transportation analysis provides an estimate of vehicle miles travelled (VMT) under existing conditions and under year 2050 conditions (existing plus CPHP). The VMT data is used to estimate emissions under both existing (2019) and existing plus CPHP (2050) conditions. The project increment of increased emissions is then determined by subtracting existing emissions from the resultant emissions under full buildout and compared to BAAQMD thresholds to determine significance.

It should be noted that the New Hospital proposed during the CPHP Initial Phase and all CPHP Future Phase projects would undergo separate CEQA analysis, at the time of project-specific proposal, as appropriate. Specifically with regard to the New Hospital, operational characteristics are not currently available. Therefore, while a quantitative analysis for the New Hospital is provided with respect to construction-related emissions, this is not possible for operational emissions and operational emissions from the New Hospital are addressed programmatically as part of the CPHP as a whole.

Initial Phase Projects

Operational emissions for the Irving Street Arrival, RAB and initial Aldea Housing Densification projects were estimated using the CalEEMod (version 2016.3.2) adjusted with recently EPA-approved Emfac2017 emissions factors. The model inputs include project-specific net new vehicle trips as estimated in Section 4.15, *Transportation*. The analysis also backs out non-transportation emissions from existing buildings to be removed such as UC Hall, School of Nursing building, and the existing Aldea Housing complex structures to be demolished in the Initial Phase.

Approach to Analyzing Other Criteria Pollutant Impacts

Regional concentrations of CO in the Bay Area have not exceeded the State standards in the past 11 years and SO_2 concentrations have never exceeded the standards. The primary source of CO emissions from development projects is vehicle traffic. Construction-related SO_2 emissions represent a negligible portion of the total basin-wide emissions and construction-related CO emissions represent less than 5percent of the Bay Area total basin-wide CO emissions. As discussed previously, the Bay Area is in attainment for both CO and SO_2. Furthermore, BAAQMD has demonstrated, based on modeling, that in order to exceed the California ambient air quality standard of 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited). The transportation analysis indicates that the intersection in the project area with the greatest volumes would be Stanyan Street and John F Kennedy (JFK) Drive with hourly volumes of 5,722 in year 2050 with the project, which is less than 24,000. Therefore, given the Bay Area's attainment status and the limited CO and SO_2 emissions that could result from the project, the project would not result in a cumulatively considerable net increase in CO or SO_2, and quantitative analysis of these pollutants is not required.

Thresholds for Evaluating TAC Impacts

In addition to criteria air pollutants, individual projects may emit TACs during construction and operation. As part of assessment of Initial Phase projects, a HRA was conducted to provide quantitative estimates of health risks from exposures to TACs.

CEQA provides the lead agency with discretion in selecting significance thresholds for the purposes of assessing impacts. For the analysis of health risk and localized impacts, UCSF uses quantitative significance thresholds adopted by BAAQMD. These thresholds are based on substantial evidence identified in Appendix D of the 2017 BAAQMD CEQA Guidelines and its 2009 Justification Report. These thresholds were applied for the analysis of health risk and localized impacts in the Final EIR for the *2014 UCSF Long Range Development Plan* and are also applied in this document. Specifically, if a proposed project would result in increased cancer risks exceeding 10 in one million or, a hazard index exceeding 1.0 or a localized $PM_{2.5}$ concentration exceeding 0.3 $\mu g/m^3$ then it would be considered to result in a significant impact with regard to exposure of sensitive receptors to substantial pollutant concentrations. The 0.3 $\mu g/m^3$ $PM_{2.5}$ concentration and the excess cancer risk of 10.0 per million persons exposed are the levels below which BAAQMD considers new sources not to make a considerable contribution to cumulative health risks (BAAQMD, 2017a).

As described by BAAQMD, USEPA considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk. A cumulative cancer risk of 100 in one million is also used by the City of San Francisco for projects within its jurisdiction to determine the location of APEZ's. Therefore, a cumulative increase in cancer risk from all sources would occur if the total of all risks exceeds in one million.

Approach to Estimating TAC Health Risk Impacts

CPHP

The CPHP includes both Initial Phase and Future Phase projects. While details about the construction phasing of the Initial Phase projects are available, specific details regarding year of construction or phasing of construction for Future Phase projects are not currently available. BAAQMD guidelines do not provide a specific methodology for assessing construction-related health risk impacts at the Plan level. Without specific information with respect to year of construction or the phasing sequence of Future Phase projects, a quantitative analysis of the construction-phase human health risk for all elements of the CPHP is not feasible. Therefore, a quantitative analysis is provided only for the construction of the Initial Phase projects (inclusive of the New Hospital), while a qualitative analysis is provided for the assessment of post-2030 construction-related health risk impacts of all other CPHP components.

Operational detail with respect to locations of TAC sources of the New Hospital and Future Phase projects is unavailable for determining risk levels quantitatively. However, a qualitative analysis is provided that considers potential TAC sources and provides mitigation measures to be implemented where the potential for significant impact may exist. It should be noted that the New Hospital and all Future Phase projects will undergo separate environmental review under CEQA.

Initial Phase Projects

A three-step process was used to calculated the human health risk associated with the construction and operations of the Initial Phase projects. The first step involved calculating TAC emissions from all new sources. Emissions from construction sources associated with the New Hospital, Irving Street Arrival, RAB and initial Aldea Housing Densification projects were calculated using CARB's CalEEMod software program to estimate average annual diesel exhaust emissions (as reported as exhaust of PM_{10}) during construction. Idling emissions associated with heavy-duty trucks (haul trucks, concrete trucks, material delivery trucks, etc.) were estimated based on the anticipated number of truck trips and idling emission factors for heavy-duty vehicles from EMFAC2017 for on-road emissions. These emissions were modeled outside of CalEEMod because the model does not accurately account for the anticipated idling activity at the campus site, which is needed for the HRA.

Operational emissions associated with the proposed building emergency diesel generators associated with the Irving Street Arrival, RAB and initial Aldea Housing Densification projects were calculated using CalEEMod to estimate the annual average DPM (as reported as exhaust PM_{10}) based on an anticipated permit limit of 50 hours per year for engine reliability (BAAQMD, 2018). Building fume hood TAC emissions were calculated using methodologies documented in a memorandum to UCSF dated December 3, 2018 that was commissioned for the approach to analysis in the UCSF Mission Bay HRA (Atmospheric Dynamics, Inc., 2018). Increases in CUP emissions were based on UCSF's BAAQMD emissions report from their most recent reporting cycle (BAAQMD, 2019a) and supplemented with emission calculation methodologies utilized for UCSF Mission Bay HRA (Atmospheric Dynamics, Inc., 2019). Detailed calculations, including all assumptions and discussion of approach to analysis, can be found in **Appendix AIR**).

Based on the increase in square footage proposed, it is estimated that operation of the combination of the Irving Street Arrival, RAB and initial Aldea Housing Densification projects would result in one additional diesel vendor truck trip per day over existing conditions, and this additional trip is assumed at the loading bay for the proposed RAB. Localized health risk component associated with minor increase in vendor truck deliveries at the campus site due to the Irving Street Arrival and the initial Aldea Housing Densification projects would be negligible, and accordingly, was not considered in the operational HRA.

The second step involved using the AERMOD (version 18081) dispersion model to convert emissions to maximum annual TAC concentrations for the cancer risk, chronic risk and $PM_{2.5}$ exposure, and also maximum 1-hour TAC concentrations for the acute risk analysis. Modeled sensitive receptor locations include residential areas, day care facilities, and schools (for children under 16 years of age). A 20-meter receptor grid co-located with the CRRP-HRA grid was modeled using a receptor height of 1.8 meters (breathing height). Please refer to Appendix AIR for further detail on risk modeling methodology.

In accordance with OEHHA *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,* the last step was accomplished by applying the highest estimated concentrations of TAC at the receptors analyzed to the established cancer potency factors and acceptable reference concentrations for non-cancer health effects. Increased cancer risks were calculated using the modeled TAC concentrations and OEHHA-recommended methodologies for both a child exposure (starting at 3rd trimester) as well as daycare and school exposure. The cancer risk calculations were based on applying the OEHHA-recommended age sensitivity factors and breathing rates, as well as fraction of time at home and an exposure duration of 30 years. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing air pollutants. Because health risk is a localized impact, two exposure scenarios were considered because the MEI for the construction HRA varied from the MEI for the operational HRA. The first scenario evaluated the construction impacts for each of the Initial Phase projects, and the second scenario evaluated the operational impacts only for 30 years of exposure. The full HRA calculations are in Appendix AIR.

Non-CEQA Impacts of the Environment on the Project

In the *California Building Industry Association v. Bay Area Air Quality Management District* case decided in 2015,[6] the California Supreme Court held that CEQA does not generally require lead agencies to consider how existing environmental conditions might impact a project's users or residents, except where the proposed project would exacerbate an existing environmental condition. Accordingly, the identified significance criteria related to exposure of sensitive receptors to substantial pollutant concentrations are valid only to the extent that the proposed project would in some way exacerbate air quality conditions. For this EIR, air quality impacts on the proposed sensitive receptors were considered in the context of the contributions from new emissions from the proposed project and not from existing emissions from off-site sources.

Sensitive receptors (residential population) would be added to the campus site as a result of the Aldea Housing complex densification during the Initial and the Future Phases of the CPHP. However, the proposed Aldea residential units would be located more than 1,000 feet from the nearest source of TACs. BAAQMD considers a distance of 1,000 feet as a zone of influence, beyond which TAC impacts from most sources may be considered to be less than significant. Therefore, the potential TAC exposure to sensitive receptors in the densified Aldea Housing complex would be less than significant and are not further considered below.

Sensitive receptors would also be added to the campus site with the completion of the proposed New Hospital, and the proposed West Side Housing along the future extension of 4th Avenue in the Future Phase of the CPHP. These future residents may be exposed to TAC emissions

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[6] *California Building Industry Association v. Bay Area Air Quality Management District,* 62 Cal.4th 369. Opinion Filed December 17, 2015.

associated with future development under full buildout of the CPHP and are considered as potential receptors in the assessment of TAC impact under the full CPHP.

Approach to Analysis of Cumulative Impacts

The contribution of a project's individual air emissions to regional air quality impacts is by its nature, a cumulative effect. Emissions from past, present and future projects in the vicinity also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality conditions (BAAQMD, 2009). As described above, the project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, if a project's emissions are below the project-level thresholds, the project would not be considered to result in a considerable contribution to cumulative regional air quality impacts.

As discussed above, cumulative health risks are analyzed in accordance with BAAQMD's threshold and guidance. As described by BAAQMD considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk. A cumulative cancer risk of 100 in one million is also used by the City of San Francisco for projects within its jurisdiction to determine the location of APEZ's. When a project is not located within an APEZ, the City of San Francisco applies a project level contribution of 10 in one million to represent a cumulatively considerable contribution.

Approach to Analysis of Consistency with Air Quality Plan

The applicable air quality plan is the BAAQMD's 2017 Clean Air Plan, which identifies measures to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce GHG emissions. Consistency with the Clean Air Plan can be determined if the project supports the goals of the plan, includes applicable control measures from the plan and would not disrupt or hinder implementation of any plan control measures. Consistency with the Clean Air Plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan.

BAAQMD guidance states that lead agencies should consider three questions in assessing consistency with the 2017 CAP: (1) Would the project support the primary goals of the Clean Air Plan? (2) Does the project include applicable control measures from the Clean Air Plan? and (3) Does the project disrupt or hinder implementation of control measures identified in the Clean Air Plan?

To meet the primary goals, the CAP recommends specific control measures and actions. The 2017 Clean Air Plan includes 85 control measures aimed at reducing air pollution in the Air Basin. A tabular comparison of applicable control measures in the 2017 CAP and existing implementation mechanisms or elements of the CPHP was completed to determine whether the proposed CPHP would meet the primary goals of the 2017 CAP and whether the CPHP includes all applicable control measures. A qualitative assessment of whether the proposed CPHP would disrupt or hinder implementation of any 2017 Clean Air Plan control measure was also completed.

Impact Analysis

Impact AIR-1: Construction of campus development under the CPHP would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. (Less than Significant with Mitigation)

As discussed above, the SFBAAB is a non-attainment area for ozone, PM_{10} and $PM_{2.5}$under federal and State air quality standards. The analysis below focuses on the potential for demolition and construction activities under the CPHP as a whole and for each of the Initial Phase projects to result in a cumulatively considerable net increase in construction-phase emissions of ROG and NOx (ozone precursors) as well as PM_{10} and $PM_{2.5}$. Project-related emissions of these pollutants would be considered cumulatively considerable if the estimated daily emissions from construction activities would exceed emission thresholds set forth by BAAQMD.

CPHP Construction

Construction of individual projects developed under the proposed CPHP would generate construction emissions from a variety of sources, including off-road construction equipment and on-road worker, vendor, and hauling vehicles. Construction emissions from activities over the entirety of the CPHP, would include those described below for the Initial Phase projects, including the New Hospital, as well as for Future Phase development after 2030.

As discussed in Chapter 3, Project Description, the CPHP would provide for development of approximately 2.90 million gross square feet (gsf) of new building space, or approximately 2.04 million gsf of net new building space. The CPHP Initial Phase projects, including the Irving Street Arrival, RAB, initial Aldea Housing Densification projects and New Hospital, along with other miscellaneous improvements, would be completed by 2030. Over this approximately 10-year period, there would be about 1.43 million gsf of new building construction, nearly 287,000 gsf of building demolition, and approximately 254,000 cubic yards of excavation on the campus site. Analysis provided below indicates that average daily construction related NO_X emissions during the Initial Phase would be just below the 54 pound per day threshold.

Proposed CPHP Future Phase development is assumed to be completed between approximately 2030 and the horizon year of the Plan, about year 2050. Over this approximately 20-year period, there would be an additional 1.47 million gsf of new construction, approximately 401,000 gsf of demolition, and approximately 139,000 cubic yards of excavation on the campus site. The general types of construction equipment and techniques that would be used for CPHP Future Phase projects would be similar to those for the CPHP Initial Phase projects. As a result, while on balance, the overall amount of construction in the Future Phase would be roughly comparable to that which would occur in the Initial Phase, the Future Phase construction would be generally spread out over a longer duration (20-year period) that the Initial Phase construction (10-year period).

Without details of specific construction schedules, sequencing, and overlap of the CPHP Future Phase projects, it is not possible to calculate average daily construction emissions associated with the CPHP Future Phase. However, it is reasonable to expect that there would be periods during the Future Phase when daily construction emissions generated would be generally comparable to those estimated for the CPHP Initial Phase projects and could exceed the average daily construction related threshold for criteria pollutants unless mitigated. It should be noted that the overall construction fleet that would be used during construction of CPHP Future Phase projects would be substantially less-polluting than the fleet active during the CPHP Initial Phase, as CARB's Off-Road Emissions Regulation for both new and in-use equipment discussed above in the Setting section would implemented over time.

Under the CPHP, renovations of certain existing buildings would also occur, such as the HSIR Towers and the Medical Sciences Building. These renovations are assumed to be predominantly within the interior of existing buildings, and would not involve substantial operation of off-road construction equipment. As such, renovation activities would not contribute substantially to generation of construction emissions. This would also be true for interior construction in new buildings that would be developed under the CPHP.

Notwithstanding improvements to the future fleet of construction equipment discussed above, **CPHP Mitigation Measure AIR-1a** is set forth below to address the potential for construction emissions associated with CPHP projects to exceed the threshold for criteria pollutants. Consequently, the impact of construction-related emissions for the CPHP as a whole would be less than significant with mitigation.

BAAQMD's approach to analysis of construction-related particulate emissions impacts (other than exhaust PM) is to emphasize implementation of effective and comprehensive dust control measures rather than detailed quantification of emissions. BAAQMD considers construction-related fugitive dust impacts of projects to be less than significant if a suite of recommended dust-control measures are implemented. Therefore, implementation of BAAQMD-identified BMPs for control of fugitive dust, listed below as **CPHP Mitigation Measure AIR-1b**, would reduce construction-related fugitive dust impacts of CPHP projects to less than significant levels.

CPHP Mitigation Measure AIR-1a: Clean Construction Equipment for CPHP Projects

The construction contractor(s) shall develop a plan demonstrating that the off-road equipment used to on-site to construct CPHP projects would achieve a fleet-wide average 80 percent reduction in NO_X exhaust emissions, compared to uncontrolled aggregate statewide emission rates for similar equipment. One feasible plan to achieve this reduction would include the following:

- All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the project site for more than two days continuously shall be equipped with engines meeting USEPA emissions standards for Tier 4 engines or equivalent; and
- Use of electrically-powered construction equipment to the degree available and feasible; and

Alternatively, if UCSF can demonstrate through preparation of an air quality assessment report prepared by an air quality specialist that large or contemporaneous CPHP construction projects would not exceed BAAQMD thresholds, then the above mitigation requirements may be waived.

CPHP Mitigation Measure AIR-1b: Best Management Practices for Controlling Particulate Emissions during Construction

The following BAAQMD Best Management Practices for particulate control will be required for all construction activities related to CPHP projects (BAAQMD, 2017a). These measures will reduce particulate emissions primarily during soil movement, grading and demolition activities but also during vehicle and equipment movement on unpaved project sites.

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, § 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at UCSF regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's telephone number shall also be visible to ensure compliance with applicable regulations.

Significance after Mitigation: Less than Significant. Implementation of CPHP Mitigation Measure AIR-1a would ensure the construction-related emissions of criteria pollutants would be less than the BAAQMD average daily thresholds for construction emissions for CPHP projects. These necessary reductions would be ensured by providing emission-controlled equipment capable of achieving necessary reductions. Implementation of CPHP Mitigation Measure AIR-1b would ensure that dust control measures implemented during construction of CPHP projects would be consistent with the guidance of BAAQMD to reduce fugitive dust-related impacts to a level that would be less than significant with mitigation.

Irving Street Arrival, Research and Academic Building, Initial Aldea Housing Densification and New Hospital Projects, and Initial Phase Improvements - Construction

As discussed in Chapter 3, *Project Description*, this EIR addresses three CPHP Initial Phase projects at a project-level (Irving Street Arrival, RAB, and initial Aldea Housing Densification projects). The proposed New Hospital is also a CPHP Initial Phase project, and generally considered programmatically in this EIR as adequate details of that project are not available at this time for a project-level analysis. However, given the anticipated concurrent construction of proposed New Hospital with the other three Initial Phase projects, the construction emissions of that project were estimated based on the amount of demolition and amount of building space that would be constructed. Accordingly, the combined construction emissions of all four Initial Phase projects are considered in this assessment for construction-related impacts.

As described in Chapter 3, *Project Description*, Initial Phase improvements are also proposed that would also include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous neighborhood investment improvements in the public realm. As with all development under the CPHP, these Initial Phase improvements would generate incremental construction-related emissions depending on the timing of implementation, but are not expected to substantially contribute to those emissions calculated below for the Initial Phase projects. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary, such as streetscape, utility or neighborhood investments, may involve the cooperation of the City of San Francisco and, as public works projects, would be subject to the City of San Francisco's Clean Construction Ordinance.

Construction emissions associated with demolition and construction of the four Initial Phase projects were calculated using CalEEMod. Modeling assumed construction phasing lengths for the Initial Phase projects provided by UCSF. Because certain details of construction are not known, CalEEMod default assumptions were assumed for vendor trips, construction worker trips, and off-road equipment use. Emissions from truck trips associated with off-haul of excavated materials were estimated using volume estimates provided by UCSF for each of these projects. All model inputs and outputs are presented in Appendix AIR.

Table 4.2-7 presents the average annual daily unmitigated construction emissions generated by the Initial Phase projects, inclusive of the proposed New Hospital, and compares them to significance thresholds developed by BAAQMD for criteria pollutants of concern and their precursors. Average daily emissions are averaged over all the construction days for each year of construction. As can be seen from Table 4.2-7, the combined construction related emissions from construction of these Initial Phase projects, including the New Hospital, would be less than significant for all years of analysis. Daily construction emissions associated with the Irving Street Arrival, RAB, initial Aldea Housing Densification and New Hospital projects would be less than 54 pound per day threshold for ROG, NO_x, and $PM_{2.5}$ and less than the 82 pound per day threshold for PM_{10} in all years of construction, and the construction-phase criteria pollutant impact of these projects would be less than significant.

TABLE 4.2-7
ESTIMATED DAILY CONSTRUCTION EMISSIONS
WITHOUT MITIGATION FOR THE CPHP INITIAL PHASE PROJECTS (INCLUDING NEW HOSPITAL)

Condition	ROG	NO_X	PM_{10}	$PM_{2.5}$
Construction 2022 (Irving Street Arrival Construction, and RAB demolition, grading, trenching and start concrete)	3.95	50.65	1.70	1.58
Construction 2023 (RAB and Irving Street Arrival building construction)	2.70	24.47	0.95	0.89
Construction 2024 (RAB and New Hospital building construction)[b]	9.75	50.80	1.42	1.34
Construction 2025 (RAB and New Hospital building construction)	9.90	42.91	1.04	1.00
Construction 2026 (New Hospital building construction)	4.98	50.98	1.01	0.96
Construction 2027(New Hospital building construction)	2.45	25.15	0.50	0.48
Construction 2028 (New Hospital building construction, Initial Aldea Housing Densification demolition, excavation and building construction)	21.74	25.96	0.55	0.53
Construction 2029 (New Hospital building construction and Initial Aldea Housing Densification construction)	30.72	25.81	0.56	0.53
Significance Threshold	54	54	82	54
Significant (Yes or No)?	No	No	No	No

NOTES:
[a] The RAB project includes demolition of UC Hall and School of Nursing building
[b] Demolition of the LPPI to make room for the New Hospital was previously considered in the 2014 LRDP FEIR and is not part of the proposed CPHP.

SOURCE: ESA, 2020 (see Appendix AIR)

Although not warranted for impacts related to criteria air pollutants from construction of the Initial Phase projects, **CPHP Mitigation Measure AIR-1a** is set forth below to further reduce construction-phase criteria pollutant emissions. This mitigation measure is also required to address the impact from TAC emissions identified in Impact AIR-3 for the Initial Phase projects, below. **Table 4.2-8** presents the average annual daily mitigated construction emissions. As can be seen from Table 4.2-8, with implementation of clean construction equipment identified in CPHP Mitigation Measure AIR-1a, construction-related emissions of the Initial Phase projects, would be further reduced and less than significant.[7]

As discussed above under *Analysis Methodology*, impacts from fugitive dust associated with proposed construction projects under the CPHP may be deemed less than significant if a suite of recommended dust-control measures are implemented. Therefore, implementation of BAAQMD-identified BMPs for control of fugitive dust, listed above as **CPHP Mitigation Measure AIR-1b** would reduce impacts during construction of each of the CPHP Initial Phase projects as well as the Initial Phase improvements to less than significant levels.

Mitigation: Implement CPHP Mitigation Measures AIR-1a and AIR-1b.

Significance after Mitigation: Less than Significant.

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[7] It should be noted that Table 4.2-8 also reflects this same mitigation being implemented for the other three Initial Phase projects (Irving Street Arrival, New Hospital, and initial Aldea Housing Densification) to address significant impacts related to exposure to DPM identified in Impact AIR-3, below.

TABLE 4.2-8
ESTIMATED DAILY CONSTRUCTION EMISSIONS WITH IMPLEMENTATION OF CPHP MITIGATION MEASURE AIR-1a FOR THE CPHP INITIAL PHASE PROJECTS (INCLUDING NEW HOSPITAL)

Condition	ROG	NO_X	PM_{10}	$PM_{2.5}$
Construction 2021 (Irving Street Arrival Demolition, and RAB demolition and excavation[a])	1.34	14.73	0.16	0.16
Construction 2022 (Irving Street Arrival Construction, and RAB concrete)	0.93	9.21	0.11	0.11
Construction 2023 (RAB and Irving Street Arrival building construction and New Hospital demolition and excavation)	0.81	8.83	0.06	0.06
Construction 2024 (RAB and New Hospital building construction[b])	6.45	18.49	0.08	0.08
Construction 2025 (RAB and New Hospital building construction[b])	7.44	25.59	0.12	0.12
Construction 2026 (New Hospital building construction[b])	2.66	34.68	0.14	0.14
Construction 2027(New Hospital building construction[b])	1.29	17.00	0.07	0.07
Construction 2028 (New Hospital building construction[b], Initial Aldea Housing Densification demolition, excavation and building construction	22.03	22.18	0.12	0.12
Construction 2029 (New Hospital building construction and Initial Aldea Housing Densification construction)	29.42	16.61	0.07	0.07
Significance Threshold	54	54	82	54
Significant (Yes or No)?	No	No	No	No

NOTES:

[a] The RAB project includes demolition of UC Hall and School of Nursing building.

[b] Demolition of the LPPI to make room for the New Hospital was previously considered in the 2014 LRDP FEIR and is not part of the proposed CPHP.

SOURCE: ESA, 2020 (see Appendix AIR)

Impact AIR-2: Operation of campus facilities developed under the CPHP would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. (Significant and Unavoidable with Mitigation)

As discussed above, the SFBAAB is a non-attainment area for ozone, PM_{10} and $PM_{2.5}$ under federal and/or State air quality standards. The analysis below focuses on the potential for operational activities under the CPHP as a whole and for each of the Initial Phase projects to result in a cumulatively considerable net increase in operational emissions of ROG and NOx (ozone precursors) as well as PM_{10} and $PM_{2.5}$. Project-related emissions of these pollutants would be considered cumulatively considerable if the estimated daily emissions from operational activities would exceed emission thresholds set forth by BAAQMD.

CPHP

Operation of proposed CPHP development, and associated increases in population, would result in an increase in criteria air pollutant and precursor emissions, including ROG, NO_X, PM_{10} and $PM_{2.5}$ from a variety of emissions sources, including onsite area sources (e.g., natural gas combustion for increased use of the CUP for space and water heating, landscape maintenance, use of consumer products such as cleaning products, etc.) and mobile on-road sources. Operational emissions of criteria pollutants for the CPHP, for purposes of this analysis, were estimated using the CalEEMod version 2016.3.2 emissions inventory model.

Increased vehicle emissions under the CPHP, notably from additional visitors, as well as students, faculty and staff, would be one of the major sources of operational emissions. The net increase in VMT that would occur under the CPHP that was used in this analysis to estimate vehicle-related emissions was derived from the transportation analysis in Section 4.15, *Transportation*. Full buildout under the proposed CPHP would generate approximately 280,900 additional daily VMT. In addition to exhaust emissions, vehicles would also generate PM_{10} and $PM_{2.5}$ emissions from entrained road dust and tire and brake wear.

Emissions from other sources under the CPHP would include natural gas combustion from increased CUP operations, maintenance operation of new backup generators, operation of landscape maintenance equipment, and maintenance application of paint and other architectural coatings.

Table 4.2-9 presents the estimated increase in operational emissions as a result of implementation of the CPHP in year 2050. Although VMT associated with mobile sources would increase over existing conditions with buildout of the CPHP, emissions of ROG and NO_X from mobile sources would not significantly increase due to the greater efficiency of the overall vehicle fleet mix predicted for year 2050. However, these predicted emissions improvements would not affect emissions of entrained road dust associated with increased VMT, and the overall increase in PM_{10} emissions would exceed the BAAQMD threshold, which would be a significant impact with respect to a net increase in criteria pollutants for which the air basin is in non-attainment.

The results presented in Table 4.2-9 reflect the incremental emissions that would occur at the buildout of the proposed CPHP (inclusive of the New Hospital), and the significant impact related to PM_{10} emissions is identified based on net new emissions in 2050. As noted earlier, due to a lack of adequate details about the operational characteristics of the New Hospital, it is not possible to estimate the operational emissions from the New Hospital at this time. The New Hospital, however, represents a large percentage of the proposed CPHP development. In fact, based on building space, the Initial Phase development program (including the New Hospital), which would be completed by 2030, makes up about 74 percent of the total new development under the CPHP. Given the size of the Initial Phase development program, it is anticipated that with the completion of the New Hospital in 2030, VMT associated with the campus site would increase substantially such that a significant impact related to PM_{10} emissions would likely begin in 2030 or shortly after.

Because this significant criteria air pollutant impact is primarily a result of the increase in VMT due to the campus site growth under the CPHP, the mitigation measures for this impact, which are set forth below, focus on minimizing all emissions but specifically those due to the increase in VMT. The mitigation measures include measures to be implemented on a project-by-project basis to minimize emissions, and enhancements to the UCSF Transportation Demand Management (TDM) program to include strategies that reduce drive-alone, taxi/TNC, and drop-off trips (which contribute the most to total and per capita VMT).

TABLE 4.2-9
UNMITIGATED OPERATIONAL CRITERIA POLLUTANT EMISSIONS: EXISTING (2019), AND WITH CPHP BUILDOUT (2050)

	Estimated Emissions (lbs/day)			
Air Pollutant	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Existing (2019) Conditions				
Mobile Sources[a]	128.8	267.3	133.7	40.9
Area Sources[a]	70.1	<0.01	<0.01	<0.01
Natural gas combustion (CUP)[a]	5.32	8.18	14.5	13.6
Natural gas combustion (non-CUP)	0.37	3.38	0.26	0.26
Total (2019)	204.6	278.9	148.5	54.8
With CPHP (2050) Conditions				
Mobile Sources[a]	78.4	240.7	254.2	73.6
Area Sources[a]	107.2	<0.01	<0.01	<0.01
Natural gas combustion (CUP)[a]	8.54	13.1	23.3	21.8
Natural gas combustion (non-CUP)	0.60	5.44	0.41	0.41
Total (2019)	194.7	259.2	277.9	95.8
Net Change from Existing	-9.90	-19.7	**129.4**	**41.0**
Regional Significance Threshold	54	54	82	54
Significant Impact?	No	No	**Yes**	**No**

NOTE:

[a] Mobile sources are motor vehicles and trucks. Area sources include landscape maintenance (equipment used for these activities such as gasoline-powered lawnmowers and blowers), maintenance application of paints and other interior and exterior surface coatings, and increased use of consumer products that result in emissions of ROG. Natural gas combustion is calculated separately for the CUP and non-CUP demand.

SOURCE: ESA, 2020 (see Appendix AIR).

CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures

The following measures, most of which are identified in the 2017 BAAQMD *CEQA Guidelines,* shall be reviewed and incorporated into specific development projects if not already included in the development project or otherwise in place at the Parnassus Heights campus site:

- Provide and maintain secure bike parking (at least one space per 20 vehicle spaces);
- Provide and maintain showers and changing facilities for employees;
- Provide information on transportation alternatives to employees;
- Provide and maintain preferential carpool and vanpool parking for non-residential uses;
- Increase building energy efficiency below Title 24 (reduces NO_X related to natural gas combustion);
- Require use of electrically powered landscape equipment, where feasible;

- Use low VOC architectural coatings in maintaining buildings;
- Meet California Green Building Code standards in new construction (reduces NOx related to natural gas combustion); and
- Provide electric vehicle charging stations in existing parking areas to promote the use of zero emission vehicles.
- Equip all truck loading and unloading docks with a power outlet for every two-dock doors. Signs shall be posted stating “Diesel trucks are prohibited from idling more than 5 minutes and trucks requiring auxiliary power shall connect to the electrical outlets to run auxiliary equipment.

CPHP Mitigation Measure AIR-2b: TDM Program Enhancements

To reduce on- and off-campus vehicle trips and resulting air quality impacts, UCSF will implement TDM program enhancements such that the number of new average daily vehicle trips to and from the campus site is reduced by at least 15 percent from the estimated new average daily vehicle trips without these program enhancements (Fehr & Peers, 2020).

TDM program enhancements/strategies shall initially include the following:

1. *New shuttle connections to regional transit (e.g. BART):* Implement new UCSF shuttle service between the campus site and regional transit stations (e.g. BART, Caltrain) to make regional transit a more attractive option for employees, patients, and visitors.
2. *Expand telecommuting and flexible hours program for employees:* Allow employees in appropriate positions to telecommute from home and/or work a modified schedule such that they are commuting to the campus less frequently per week.
3. *Improved telehealth program for patients:* Implement an expanded telehealth program to reduce the need for patients to travel to the campus site for appointments.
4. *Carpool and vanpool credits and incentives:* Provide cash allowance or discounted parking permit rates for individuals who carpool rather than drive alone; reduce monthly fares for Vanpool riders and drivers.
5. *Discontinue monthly parking permits:* Discontinue issuance of monthly parking permits to make commute travel mode a daily decision by shifting to daily parking permits.
6. *Enhanced patient TDM program*: Enhance information provided to patients regarding travel options to the campus site, including discussion of limited parking environment and public transit options.
7. *TNC to transit subsidy*: Provide cash allowance for individuals to use TNC to travel to transit rather drive alone.

UCSF may also make improvements to its existing TDM measures to achieve the targeted reduction in daily vehicle trips. In addition, if other new and/or improved TDM strategies are identified in the future, UCSF may implement such strategies in place of or in addition to the ones listed above.

The TDM program enhancements/strategies shall be monitored annually for their combined effectiveness in meeting the performance standard set forth above. The annual monitoring and reporting program shall include: (a) an annual calculation of baseline new average daily vehicle trips without TDM program enhancements for each year starting in 2030[8]; (b) an annual calculation of new average daily vehicle trips with the TDM program enhancements; and (c) a comparison of the results of (a) and (b) against the "existing" average daily vehicle trips to determine whether the performance standard of a 15 percent reduction in new average daily vehicle trips is achieved.

As this significant impact would likely begin upon the completion of the New Hospital, the annual monitoring and reporting program shall be commenced upon the completion and occupancy of the Initial Phase projects, i.e., after 2030, and shall be conducted by a qualified transportation engineer, using data from UCSF's regularly administered travel behavior surveys for employee commute, patient and visitor travel, and resident travel. Using these survey results, the monitoring report will gauge the effectiveness of implemented TDM program enhancements at achieving the required 15 percent reduction in new average daily vehicle trips. If the annual performance standard is met, no further action from UCSF is required until the next year. In the event that the performance standard is not met, UCSF will examine the TDM program to identify areas of improvement and institute changes, which shall be evaluated for their effectiveness in the following year's monitoring report.

Significance after Mitigation: Significant and Unavoidable. VMT estimates used in this analysis included adjustments for development scale, density, and diversity of uses, distance to transit and design of the campus sites, as well as a robust number of alternative transportation trips (walk, bike, and transit) and carpooling. Therefore, many key elements of alternative mode strategies have been incorporated into the trip generation and VMT assumptions.

CPHP Mitigation Measures AIR-2a and 2b would require the implementation of additional TDM and other measures to reduce vehicle trips to and from the campus site. However, the reduction in vehicle trips that would be achieved from the implementation of these measures would be about 15 percent (Fehr & Peers, 2020). Given that mobile emissions represent approximately 91 percent of total PM_{10} emissions under the CPHP, CPHP Mitigation Measures AIR-2a and -2b would not result in the 37 percent reduction in PM_{10} emissions needed to reduce the impact to a less-than-significant level, and the impact of operational criteria air pollutant emissions under the CPHP would be significant and unavoidable.

Regional Air Quality Impacts and Health Effects and the "Friant Ranch" Decision Associated with the CPHP

In 2018, the California Supreme Court in *Sierra Club v. County of Fresno*, (2018) 6 Cal.5th 502 ("Friant Ranch"), determined that the EIR for the Friant Ranch project was inadequate because it did not make "a reasonable effort to substantively connect the project's air quality impacts to likely health consequences" and that "the EIR should be revised to relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible

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[8] The baseline new average daily vehicle trips without TDM program enhancements would be based on the average daily vehicle trip estimates for "Existing Conditions" and "CPHP (Future Phase)" scenarios, as presented in Appendix TRANS.

at the time of drafting to provide such an analysis." As such, a discussion is warranted for the potential health effects associated with the CPHP's significant air quality impacts and the currently available modeling tools and methods to correlate the project's criteria pollutant emissions to health effects. This discussion is provided for informational purposes only and there is no related threshold of significance.

The types of adverse health effects known to occur as a result of exposure to criteria air pollutants and the potential formation of ozone have been discussed in "Ambient Air Quality - Criteria Air Pollutants" under the Environmental Setting Section, above. The analysis below summarizes the findings of a Health Impact Assessment (HIA) prepared for the proposed CPHP in support of the EIR (Ramboll, 2020). The HIA uses available models to attempt to correlate the CPHP's unmitigated criteria air pollutant emissions to elevated concentrations of such pollutants in the region, and then to identify health effects that may occur as a result of predicted increased concentrations. The following analysis reflects a good faith attempt, based on the existing tools, to relate the expected adverse air quality impacts to likely health consequences as directed by the Supreme Court in the Friant Ranch case.[9] Limitations and qualifications of the analysis are discussed in detail in the HIA which is presented in full in **Appendix HIA**. The analyses do not conclude whether the predicted health effects are significant for CEQA purposes; rather, the predicted health effects are provided for informational purposes so as to enhance the understanding of the effects of impacts determined to be significant.

For criteria pollutants, including ozone precursors NOx and ROG, as well as PM_{10} and $PM_{2.5}$, BAAQMD established CEQA significance thresholds based on the federal New Source Review program for new stationary sources of pollution, which contains more stringent thresholds than does BAAQMD's offset program for these pollutants. "These thresholds represent the emission levels above which a project's individual emissions would result in a considerable adverse contribution to the [San Francisco Bay Area Air Basin]'s existing air quality conditions" (BAAQMD, 2009). These thresholds provide a connection between a mass emission threshold and avoidance of adverse health effects. As the analysis above shows, the operational emissions from the implementation of the CPHP would be below applicable mass emissions thresholds for all pollutants except PM_{10}.

The following analysis is provided to disclose the extent to which unmitigated (without the implementation of CPHP Mitigation Measures AIR-2a [Project-Level Operational Measures] and AIR-2b [TDM Program Enhancements]) criteria air pollutant emissions from the CPHP would result in (1) changes in the concentration of criteria air pollutants in the atmosphere, and (2) correlative health effects that may occur as a result of those changes in air pollutant concentrations. CPHP Mitigation Measures AIR-2a and 2b would require the implementation of additional TDM and other measures to reduce vehicle trips to and from the campus site which would reduce PM_{10} emissions by at least 15 percent. However, conservatively, the health effects analysis is based on unmitigated emissions. Incorporation of reductions due to mitigation measures would result in lower health effect estimates.

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[9] *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 517-522.

Other conservative assumptions include the assumption that health effects occur at any concentration, including small incremental concentrations (discussed further in Attachment C of the HIA); and the assumption that all particulate matter is of equal toxicity. As such, results presented below are meant to represent an upper bound of potential health effects, and considering the inherent uncertainty in the models as well as the small contribution of CPHP emissions relative to the base case emissions, the actual health effects may be zero. Further, should health effects in fact only occur above a certain threshold, and the increment from the CPHP not cause an exceedance of that threshold, the actual health effects could be zero.

Consistent with the USEPA's assessment of health effects of PM, the HIA evaluation focuses on $PM_{2.5}$ and not PM_{10}[10] as $PM_{2.5}$ has a much larger body of evidence that this size fraction is associated with health effects due to the sources, composition, chemical properties and lifetime in the atmosphere (USEPA 2009). $PM_{2.5}$ is capable of penetrating deeper into the lungs because of their size compared to larger particles and this is believed to contribute to greater health effects. Consistent with USEPA health effects evaluations, the health effect functions in BenMAP for PM use $PM_{2.5}$ as the causal PM agent.

A photochemical grid model and Comprehensive Air Quality Model with extensions (CAMx) was used to estimate the increases in concentrations of ozone and $PM_{2.5}$ in the region as a result of the emissions of criteria and precursor pollutants from the CPHP.

The USEPA-authored program, the Benefits Mapping and Analysis Program Community Edition (BenMAP-CE, herein referred to as "BenMAP"),[11] was then used to estimate the resulting health effects from the small increases in concentrations.

Results of the HIA Analysis

Photochemical grid modeling performed using CAMx predicts slight increases in ozone and $PM_{2.5}$ concentrations with the unmitigated CPHP emissions as compared to the base case emissions. The CAMx results for the base case as compared to the base case plus the unmitigated CPHP show the following maximum increases at the most affected model grid cells:

- 0.003 parts per billion (ppb), or 0.007 percent, for annual average of maximum daily 8-hour ozone;
- 0.019 ppb, or 0.03 percent, for overall maximum of maximum daily 8-hour average ozone;
- 0.039 $\mu g/m^3$, or 0.4 percent, for annual average $PM_{2.5}$; and
- 0.118 $\mu g/m^3$, 0.4 percent, for maximum 24-hour average $PM_{2.5}$.

Note that these estimated increases are for the most affected grid cell; thus, the estimated changes in all other modeled grid cells would be less. These results generally validate the prediction that the addition of locally generated emissions could result in incremental increases in nearby ground level concentrations of ozone and $PM_{2.5}$. However, these increases are very small.

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[10] PM_{10} is defined as particulate matter with a nominal mean aerodynamic diameter less than or equal to 10 µm.

[11] https://www.epa.gov/benmap/benmap-ce-manual-and-appendices.

Although there is a strong correlation between elevated concentrations and elevated health incidence rates, there is uncertainty when linking health incidence data with very low concentrations. In addition, as discussed below, there are several additional modeling uncertainties and assumptions embodied in the analysis. Health effects presented are conservatively estimated, and may be zero.

Overall, the estimated change in health effects from ozone and $PM_{2.5}$ associated with unmitigated CPHP emissions are minimal in light of background incidences. Specifically, for all the health endpoints quantified, the number of estimated incidences is between 0.000066 percent and 0.0011 percent of the background health incidence. The "background health incidence" is an estimate of the average number of people that suffer from some adverse health effect in a given population over a given period of time in the absence of additional emissions from the CPHP. Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. When taken into context, the small increase in incidences and the very small percentage of the number of background incidences indicate that these health effects are minimal in a developed, urban environment.

Maximum $PM_{2.5}$-related health outcomes attributed to CPHP-related increases in ambient air concentrations include:

- Asthma-related emergency room visits (approximately 0.99 incidences per year),
- Asthma-related hospital admissions (approximately 0.07 incidences per year),
- All cardiovascular-related hospital admissions (not including myocardial infarctions) (approximately 0.20 incidences per year),
- All respiratory-related hospital admissions (approximately 0.42 incidences per year),
- Mortality (approximately 2.36 incidences per year),[12] and
- Nonfatal acute myocardial infarction (approximately 0.16 incidences per year across all age groups).

These numbers compare to the background incidences for the entire modeled regional area of approximately 25 million people, with asthma-related emergency room visits (126,657 per year), asthma-related hospital admissions (14,603 per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (180,325 per year), all respiratory-related hospital admissions (155,122 per year), mortality (327,475 per year), and nonfatal acute myocardial infarction (48,359 per year for all age groups). Refer to the Appendix HIA for additional discussion.[13]

Maximum ozone-related health outcomes attributed to CPHP-related increases in ambient air concentrations included:

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[12] Mortality associated with $PM_{2.5}$ is a result of an individual's exposure to average annual $PM_{2.5}$ concentrations. As such, this analysis uses average annual $PM_{2.5}$ concentrations to estimate incidences of mortality.

[13] For background incidence rates, BenMAP projects likely mortality rates for future years, but for other health effects, incidence rates are based on population changes only and may not reflect rates for future years. The projected incidence rates are assumed conservative because incidence rates are expected to decrease over time with improved air quality.

- Respiratory-related hospital admissions (approximately 0.10 incidences per year),
- Mortality, All Cause (approximately 0.055 incidences per year), and
- Asthma-related emergency room visits (approximately 1.23 incidences per year).

These numbers compare to the background incidences for the entire modeled regional area with respiratory-related hospital admissions (155,122 per year), mortality all cause (204,688 per year), and asthma-related emergency room visits (126,658 per year). Refer to Appendix HIA for additional discussion.[14]

Modeling Assumptions

As discussed above, health outcomes presented here conservatively utilize the years corresponding to the highest annual average CPHP emissions for ozone precursors and $PM_{2.5}$, which were combined to develop a conservative emissions inventory. The emissions speciation profiles for the regional existing conditions emission inventory were assumed equivalent to the speciation profiles for the CPHP conditions, as developed by BAAQMD. As noted above, it was assumed that health effects can occur at any concentration, including small incremental concentrations. It was also assumed that all $PM_{2.5}$ emissions are of equal toxicity, regardless of the source of PM or the constituents of each PM emissions source. These assumptions all result in highly conservative health risk estimates and are intended to represent the worst-case, upper bound potential impacts.

Uncertainty of Results

As many regional-scale HIAs and this project-level analysis demonstrate, performing a quantitative HIA is complex and difficult, but some level of analyses can be performed. Nevertheless, the limitations of such analyses should be noted. The model outputs provide seemingly precise values. It would be inappropriate, however, to assume that these values give an exact understanding of the CPHP's actual impacts. The uncertainty in such analyses is inherent and unavoidable due to all of the assumptions about meteorology, photochemical reactions, and other air basin characteristics.

The HIA for the CPHP does not link the changes in ozone and $PM_{2.5}$ concentration associated with CPHP operations to any specific *individual* health impact; instead, it uses studies that report *correlations* between health effects and exposure to ozone and $PM_{2.5}$ to estimate potential effects on the population in the modeling domain.

The modeling performed to estimate a project's contribution to ambient concentrations of pollutants requires assumptions for many variables related to the proposed project and the meteorological and other characteristics of the air basin, into which the pollutants are emitted. All simulations of physical processes, whether ambient air concentrations or health effects from air pollution, have an associated level of uncertainty due to many simplifying assumptions. Each step in the modeling process, and each assumption incorporated into the model, adds a degree of uncertainty into the reported results, resulting from the usage of air pollutant emission estimates, ambient air concentration modeling, and health impact calculations using various health impact functions. The

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[14] Ibid.

combination and compounding of the uncertainties from each step of the modeling analysis, in the context of the very small increments of change that are predicted, could result in large uncertainties. The modeling results should be viewed in light of these uncertainties.

There are a number of assumptions built into the application of C-R functions in BenMAP that may lead to an overestimation of health effects. For example, for all-cause mortality impacts from $PM_{2.5}$, these estimates are based on a single epidemiological study that found an association between $PM_{2.5}$ concentrations and mortality. While similar studies suggest that such an association exists, there remains uncertainty regarding a clear causal link. This uncertainty stems from the limitations of epidemiological studies, such as inadequate exposure estimates and the inability to control for many factors that could explain the association between $PM_{2.5}$ and mortality such as lifestyle factors like smoking or exposures to other air pollutants.

For both the $PM_{2.5}$ and ozone health effects calculated, each of the pollutants may be a confounder of the other and both air pollutants could contribute to the health effect outcomes evaluated, so the overall impacts may be overstated.

These assumptions and uncertainties do not necessarily mean the modeled results are invalid or uninformative. Rather, the modeled results should not be misinterpreted as an exact calculation of something as complex as photochemical grid modeling, or as an exact correlation between a given level of emissions and specific health effects. In this case, the modeled health effects may differ from the actual future health effects associated with implementation of the CPHP.

The very small increase in health effects incidence determined from the modeling, relative to the substantially larger number of background health effects incidences, demonstrates that the proposed CPHP would have a very small impact on specific health effects. The estimated increases in those health effect incidences are quite minor compared to the background health incidence values with the largest $PM_{2.5}$ health effect (all-cause mortality), representing only 0.0007 percent of the total of all deaths, and the largest effect for ozone (asthma-related emergency room visits by adults), representing 0.001 percent of all emergency room visits.

While the quantitative HIA uses the best available tools and guidance currently available, there are many compounding uncertainties which may affect the reported results such that the modeled health effects may differ from the actual future health effects associated with the proposed CPHP. The calculated health effects for the CPHP are conservatively estimated, within the models' margin of error, and may in fact be zero.

Additional discussion of modeling limitations and uncertainty is provided in Appendix HIA.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

The proposed removal of the existing UC Hall and School of Nursing building that would occur as part of the RAB project, and the removal of three existing residential apartment buildings in the Aldea Housing complex as part of the initial Aldea Housing Densification project, would result in area source and energy source criteria pollutant emission losses from these older, less efficient buildings. Emissions losses from these existing buildings being removed were estimated using the CalEEMod model. The energy and area source emissions from the operation of the initial Aldea residences and the proposed RAB were also estimated using the CalEEMod model. The proposed Irving Street Arrival is conservatively assumed to generate operational emissions equivalent to those of the existing on-site structure. As a practical matter, the space is likely to require a reduced energy demand for water and space heating as a result of improved efficiency of building materials and construction methods as compared to the existing structure.

The proposed RAB would also result in increased operation of the CUP; these emissions were calculated based on emission estimates from existing operations provided by BAAQMD and the percentage increase in operable square footage. The existing Aldea residences do not draw from the CUP operations, and similarly, the proposed new Aldea residences that would occur under the Initial Phase would not draw from the CUP.

Criteria pollutant emissions would also be generated by the increase in vehicle traffic by the Initial Phase projects. Similar to the VMT estimated for the CPHP as a whole, the net increase in VMT used to estimate vehicle-related emissions was derived from the transportation analysis in Section 4.15, *Transportation*. The proposed RAB and initial Aldea Housing Densification projects would generate approximately 51,900 additional daily VMT. In addition to exhaust emissions, vehicles would also generate PM_{10} and $PM_{2.5}$ from entrained road dust and tire and brake wear. The proposed Irving Street Arrival would not generate any new vehicle trips.

Operation of proposed Initial Phase improvements may generate incremental criteria air pollutants, but are not expected to substantially contribute to those emissions calculated below for operation of the Initial Phase projects. Once constructed, the Initial Phase improvements are not anticipated to generate incremental operational emissions, and those improvements that involve building renovations are likely to improve building efficiency with potential reduction of operational emissions of the CUP for heating and cooling.

Table 4.2-10 presents estimated operational emissions from the Irving Street Arrival, RAB and initial Aldea Housing Densification projects. As shown in Table 4.2-10, emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ would all be less than the BAAQMD thresholds of significance. The criteria pollutant impact associated with operation of these Initial Phase projects and Initial Phase improvements would be less than significant with respect to net increases of criteria pollutants and precursors within the air basin.

Mitigation: None required.

Regional Air Quality Impacts and Health Effects and the "Friant Ranch" Decision Associated with Operation of the Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects

Incremental operational emissions associated with these Initial Phase projects, and excluding the New Hospital, were estimated for the year of buildout (2030) of these projects in the EIR. Emissions associated with these projects include emissions from architectural coatings, VOCs in consumer products, landscaping equipment, emergency generators, CUP, and emissions associated with motor vehicle use.

TABLE 4.2-10
OPERATIONAL CRITERIA POLLUTANT EMISSIONS OF THREE INITIAL PHASE PROJECTS (2030)

Air Pollutant	Estimated Emissions (pounds per day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
New Development				
Irving Street Arrival[a]	NA	NA	NA	NA
RAB Energy Source	0.03	0.28	0.02	0.02
RAB Area Sources[b]	1.20	<0.01	<0.01	<0.01
Initial Phase Aldea Densification Energy Sources	<0.01	0.07	<0.01	<0.01
Initial Phase Aldea Densification Area Sources[b]	0.89	0.02	<0.01	<0.01
Losses from Buildings Demolished in Initial Phase)				
Irving Street Arrival	NA	NA	NA	NA
UC Hall Energy Sources (RAB)	-0.10	-0.96	-0.07	-0.07
UC Hall Area Sources[b]	-4.03	> -0.01	> -0.01	> -0.01
Existing School of Nursing building Energy Sources	-0.06	-0.59	-0.04	-0.04
Existing School of Nursing building Area Sources	-2.44	> -0.01	> -0.01	> -0.01
Existing Aldea Housing Energy Sources (Initial Phase Demolition only)	<0.01	-0.09	<0.01	<0.01
Existing Aldea Housing Area Sources[b] (Initial Phase Demolition only)	-0.84	<0.01	<0.01	<0.01
Mobile Source Emissions (RAB and Initial Aldea Housing Densification)[b]	5.5	18.6	38.7	10.5
Natural gas combustion (CUP)[b]	0.11	0.17	0.32	0.30
Emergency Generator (RAB)	0.01	0.96	0.02	0.02
Total	**0.27**	**18.48**	**39.0**	**10.7**
Significance Threshold	54	54	82	54
Significant Impact?	No	No	No	No

NOTES:

[a] The proposed Irving Street Arrival is conservatively assumed to generate operational emissions equivalent to those of the existing on-site structure. As a practical matter, the space is likely to require a reduced energy demand for water and space heating as a result of improved efficiency of building materials and methods as compared to the existing structure. The Irving Street Arrival would not generate any new vehicle trips.

[b] Mobile sources are motor vehicles and trucks. Area sources include landscape maintenance (equipment used for these activities such as gasoline-powered lawnmowers and blowers), maintenance application of paints and other interior and exterior surface coatings, and increased use of consumer products that result in emissions of ROG. Natural gas combustion is for the CUP.

SOURCE: ESA, 2020 (see Appendix AIR).

The potential health effects from the emissions associated with these Initial Phase Projects can be generally characterized using the full CPHP level modeling results and a comparison of total emissions. This is because the types and general spatial allocation of emissions is similar between the Initial Phase projects and the full buildout of the CPHP. Emissions from these Initial Phase projects would also be subject to similar meteorological and photochemical reaction conditions as the full Project assessment. Additionally, the exposed population at full buildout in 2050 is greater than the exposed population in 2030, due to project growth in the region. Therefore, linearly scaling full CPHP buildout health effects to estimate Initial Phase projects health effects is conservative.

Concentrations changes, and thus health effects, from $PM_{2.5}$ are driven by primary $PM_{2.5}$ emissions, with smaller contributions from NOx, VOC, and SO2 resulting in secondary $PM_{2.5}$ formation. Based on a ratio of total $PM_{2.5}$ emissions from the full CPHP to the three Initial Phase projects $PM_{2.5}$ emissions, approximate health effect results from $PM_{2.5}$ for these Initial Phase projects would be approximately 20 percent of the full CPHP buildout.

Concentration changes, and thus health effects, from ozone are driven primarily by emissions of VOC and NOx, with some contribution from CO. Based on a ratio of total VOC and NOx emissions from the full CPHP to the three Initial Phase projects, VOC and NOx emissions, approximate health effect results from ozone for these Initial Phase projects would be approximately 20 percent of the full CPHP buildout.

Impact AIR-3: Construction activities under the CPHP could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater. (Less than Significant with Mitigation)

CPHP

Construction emissions from activities over the duration of the CPHP would include those described below for the CPHP Initial Phase projects, including the New Hospital, as well as construction emissions associated with CPHP Future Phase projects. Specific details regarding year of construction or phasing of construction for Future Phase projects that would occur beyond 2030 are not currently available. BAAQMD guidelines do not provide a specific methodology for assessing construction-related health risk impacts at the Plan level. Without specific information with respect to year of construction or the phasing sequence of the CPHP Future Phase projects, a quantitative analysis of construction-phase human health risk from the CPHP as a whole is not feasible. Accordingly, a quantitative analysis is provided below for CPHP Initial Phase projects, including the New Hospital, while a qualitative analysis is provided herein for the assessment of construction-related health risk impacts of other CPHP components to be constructed post-2030.

The CPHP Initial Phase projects, including the Irving Street Arrival, RAB, initial Aldea Housing Densification projects and New Hospital, along with other miscellaneous improvements would be completed by 2030. Construction, demolition and excavation estimates over the approximate 10-year Initial Phase are summarized in Impact AIR-1, above. Analysis provided below for the Initial Phase project indicates that calculated human health risk would exceed applicable thresholds, and consequently health risk impact from construction TAC emissions would be significant and mitigation is identified below to reduce construction-related emissions.

Proposed CPHP Future Phase development is assumed to be completed between approximately 2030 and the horizon year of the Plan, about year 2050. Construction, demolition and excavation estimates over the approximate 20-year Future Phase are summarized in Impact AIR-1, above. The general types of construction equipment and techniques that would be used for CPHP Future Phase projects would be similar to those for the CPHP Initial Phase projects. As a result, while on balance, the overall amount of construction in the Future Phase would be roughly comparable to that which would occur in the Initial Phase, the Future Phase construction would be generally spread out over a longer duration (20-year period) that the Initial Phase construction (10-year period).

Without details of specific construction schedules, sequencing, and overlap of the CPHP Future Phase projects, it is not possible to calculate average daily construction TAC emissions associated with the CPHP Future Phase. However, it is reasonable to expect that there would be periods during the Future Phase when daily construction TAC emissions generated would be generally comparable to those estimated for the CPHP Initial Phase projects. It should be noted that the overall construction fleet that would be used during construction of CPHP Future Phase projects would be substantially less-polluting than the fleet active during the CPHP Initial Phase, as CARB's Off-Road Emissions Regulation for both new and in-use equipment discussed above in the Setting section would implemented over time.

Nonetheless, the human health risk impact associated with the CPHP would be potentially significant and require mitigation. Specifically, **CPHP Mitigation Measure AIR-1a** would require the use of construction equipment with USEPA-certified Tier 4 engines (although as a practical matter, post-2030 when Future Phase construction would take place, the majority of in-use construction equipment will likely already meet these requirements).

In addition, implementation of **CPHP Mitigation Measure AIR-3** would require that for proposed CPHP construction projects that involve 12 months of active construction (i.e., exclusive of interior renovations) and are within 1,000 feet of sensitive receptors, a project-specific construction health risk analysis shall be completed to demonstrate that the construction activities of individual projects under the CPHP would not result in a significant acute, chronic non-cancer or cancer-related health risk to specific sensitive receptors. Implementation of CPHP Mitigation Measure AIR-3 would ensure potential impact related to exposure of sensitive receptors to substantial pollutant concentrations or health risk from construction activities under the CPHP would be less than significant.

Mitigation: Implement CPHP Mitigation Measure AIR-1a.

CPHP Mitigation Measure AIR-3: Project-Specific Health Risk Analysis

UCSF shall prepare and submit to UCOP for review and approval, a project-specific health risk analysis demonstrating that project construction activities will not result in a significant acute, chronic non-cancer or cancer-related health risk to sensitive receptors. This requirement shall apply to construction projects in excess of 12 months of active construction (i.e., exclusive of interior renovations) and within 1,000 feet of sensitive receptors. As a performance standard, any subsequent project-specific health risk analysis must demonstrate an excess cancer risk level of 10-in-1 million or less, a non-cancer (i.e., chronic or acute) hazard index of 1.0 or less, and an incremental increase an annual average $PM_{2.5}$ concentrations of no more than 0.3 microgram per cubic meter.

Significance after Mitigation: Less than Significant.

Irving Street Arrival, RAB, New Hospital, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As discussed in Chapter 3, *Project Description*, this EIR addresses three CPHP Initial Phase projects at a project-level (Irving Street Arrival, RAB, and initial Aldea Housing Densification projects). While the proposed New Hospital is also a CPHP Initial Phase project and is generally considered programmatically in this EIR, given the anticipated concurrent construction of proposed New Hospital with the other Initial Phase projects, all four Initial Phase projects are considered in this assessment for construction-related health risks.

Other Initial Phase improvements would also generate incremental construction-related emissions depending on the timing of implementation, however, they are not expected to substantially contribute to the risks calculated below for the Initial Phase projects mentioned above. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary, such as streetscape, utility or neighborhood investments, may involve the cooperation of the City of San Francisco and, as public works projects, may be subject to the City of San Francisco's Clean Construction Ordinance which would reduce DPM emissions.

Incremental Cancer Risk from Construction of the Irving Street Arrival, RAB, Initial Aldea Housing Densification and New Hospital

For purposes of this analysis, incremental cancer risk associated with construction of the Irving Street Arrival, RAB, and initial Aldea Housing Densification, as well as the New Hospital, were estimated.

Table 4.2-11, **Table 4.2-12**, **Table 4.2-13** and **Table 4.2-14** present the unmitigated HRA results for existing receptors due to construction activities for the Irving Street Arrival, RAB, New Hospital, and the initial Aldea Housing Densification, respectively. The results represent a 30-year exposure which begins at the start of construction.

As shown in these tables, construction emissions from each of the four Initial Phase projects other than the initial Aldea Housing Densification (See Table 4.2-14) would result in a cancer risk at the maximum exposed off-site residential receptors that would exceed the 10 in one-million excess cancer risk threshold. Additionally, construction emissions from the RAB and initial Aldea Housing Densification projects would each result in a cancer risk at the maximum exposed residential receptors on the campus site that would exceed the 10 in one-million excess cancer risk threshold. Also, construction emissions from the RAB would result in a cancer risk at the maximum exposed daycare receptor that would exceed the 10 in one-million excess cancer risk threshold.

Thus, the cancer risk due to construction activities associated with each of the Initial Phase projects, including the New Hospital, would be potentially above the BAAQMD threshold of 10 in one-million and the impact would be potentially significant.

As discussed under Impact AIR-1, **CPHP Mitigation Measure AIR-1a** that includes the use of clean construction equipment would be imposed on the construction of each of the Initial Phase projects, including the New Hospital, to reduce NO_X emissions. Implementation of CPHP Mitigation Measure AIR-1a would also reduce DPM emissions generated by the construction activities associated with these Initial Phase projects. Additionally even though the other Initial Phase improvements would only incrementally add DPM emissions during construction, CPHP Mitigation Measure AIR-1a is conservatively identified to apply to these improvements as well.

Table 4.2-15, **Table 4.2-16**, **Table 4.2-17**, and **Table 4.2-18** present the mitigated human health risk to existing receptors from construction activities for the Irving Street Arrival, RAB, New Hospital, and initial Aldea Housing Densification projects, respectively. As shown in these tables, the maximum cancer risk from construction emissions for all receptors with implementation of CPHP Mitigation Measure AIR-1a would be below the 10 in one-million excess cancer risk threshold at all receptors for each of the four individual Initial Phase construction projects. With implementation of CPHP Mitigation Measure AIR-1a, impacts would also be below the 10 in one-million excess cancer risk threshold at all receptors assuming concurrent construction of these Initial Phase projects. Thus, the cancer risk due to construction activities associated with each of these Initial Phase projects would be less than significant with mitigation.

Mitigation: Implement CPHP Mitigation Measure AIR-1a.

Significance after Mitigation: Less than Significant. Implementation of CPHP Mitigation Measure AIR-1a which requires the use of clean construction equipment would result in reduced cancer risk such that maximum cancer risk for a 30-year lifetime exposure for the MEI for each Initial Phase project would be below the BAAQMD threshold of 10 in one-million, and therefore, the impact would be less than significant.

TABLE 4.2-11
UNMITIGATED PROJECT HEALTH IMPACTS ESTIMATED, IRVING STREET ARRIVAL CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	**24.99**	0.02	0.09
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	**Yes**	No	No
Resident – Onsite Residence			
Project Construction[d]	5.33	<0.01	0.02
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Daycare			
Project Construction[d]	1.18	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
School			
Project Construction[d]	0.07	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on the north side of Irving Street
onsite residents = UCSF Third Avenue housing
daycare = UCSF Lucia Child Development Center
school = Haight Ashbury Community Nursery School

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$ annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~1.75 years
daycare = duration of construction, ~1.75 years
school = duration of construction, ~1.75 years

SOURCE: ESA, 2020 (see Appendix AIR)

TABLE 4.2-12
UNMITIGATED PROJECT HEALTH IMPACTS ESTIMATED, RAB CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	**51.03**	0.04	0.16
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	**Yes**	No	No
Resident – Onsite Residence			
Project Construction[d]	**25.50**	0.02	0.08
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	**Yes**	No	No
Daycare			
Project Construction[d]	**19.98**	0.04	0.17
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	**Yes**	No	No
School			
Project Construction[d]	0.19	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on the north side of Parnassus Avenue
onsite residents = third avenue housing
daycare = UCSF Lucia Child Development Center
school = Haight Ashbury Community Nursery School

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~4 years
daycare = duration of construction, ~4 years
school = duration of construction, ~4 years

SOURCE: ESA, 2020 (see Appendix AIR)

TABLE 4.2-13
UNMITIGATED PROJECT HEALTH IMPACTS ESTIMATED, NEW HOSPITAL CONSTRUCTION

Receptor Type[a]	**Cancer Risk**	**Chronic Hazard Index**[b,c]	**$PM_{2.5}$ Concentration ($\mu g/m^3$)**[c]
Resident – Offsite Receptor			
Project Construction[d]	**67.06**	0.04	0.19
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	**Yes**	No	No
Resident – Onsite Residence			
Project Construction[d]	6.54	<0.01	0.02
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Daycare			
Project Construction[d]	1.91	<0.01	0.02
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
School			
Project Construction[d]	0.50	0.01	0.03
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on the south side of Parnassus Avenue east of the campus site
onsite residents = UCSF Third Avenue housing
daycare = Lucia Child Care Center
school = Haight Ashbury Community Nursery School

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~6.5 years
daycare = attendance years at location, ~5 years
school = attendance years at location, ~4 years

SOURCE: ESA, 2019 (see Appendix AIR)

TABLE 4.2-14
UNMITIGATED PROJECT HEALTH IMPACTS ESTIMATED, INITIAL ALDEA HOUSING DENSIFICATION CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	8.99	<0.01	0.06
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Resident – Onsite Residence			
Project Construction[d]	**60.81**	0.09	**0.42**
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	**Yes**	No	**Yes**
Daycare			
Project Construction[d]	0.07	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
School			
Project Construction[d]	0.01	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on Christopher Drive
onsite residents = Existing Aldea Housing remaining and occupied in Initial Phase construction
daycare = Kirkham Child Development Center
school = Clarendon Alternative Elementary

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~1 year
daycare = duration of construction, ~1 year
school = duration of construction, ~1 year

SOURCE: ESA, 2019 (see Appendix AIR)

TABLE 4.2-15
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, IRVING STREET ARRIVAL CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	1.17	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Resident – Onsite Residence			
Project Construction[d]	0.30	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Daycare			
Project Construction[d]	0.07	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
School			
Project Construction[d]	<0.01	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on the north side of Irving Street
onsite residents = UCSF Third Avenue housing
daycare = UCSF Lucia Child Development Center
school = Haight Ashbury Community Nursery School

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$ annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~1.75 years
daycare = duration of construction, ~1.75 years
school = duration of construction, ~1.75 years

SOURCE: ESA, 2019 (see Appendix AIR)

TABLE 4.2-16
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, RAB CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	2.91	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Resident – Onsite Residence			
Project Construction[d]	1.44	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Daycare			
Project Construction[d]	1.10	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
School			
Project Construction[d]	0.01	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on the north side of Parnassus Avenue
onsite residents = UCSF Third Avenue housing
daycare = UCSF Lucia Child Development Center
school = Haight Ashbury Community Nursery School

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~4 years
daycare = duration of construction, ~4 years
school = duration of construction, ~4 years

SOURCE: ESA, 2019 (see Appendix AIR)

TABLE 4.2-17
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, NEW HOSPITAL CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	4.72	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Resident – Onsite Residence			
Project Construction[d]	0.50	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Daycare			
Project Construction[d]	0.16	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
School			
Project Construction[d]	0.04	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on the south side of Parnassus Avenue east of the campus site
onsite residents = UCSF Third Avenue housing
daycare = UCSF Lucia Child Development Center
school = Haight Ashbury Community Nursery School

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$ annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~6.5 years
daycare = attendance years at location, ~5 years
school = attendance years at location, ~4 years

SOURCE: ESA, 2019 (see Appendix AIR)

TABLE 4.2-18
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, INITIAL ALDEA HOUSING DENSIFICATION CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	0.67	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Resident – Onsite Residence			
Project Construction[d]	4.53	0.01	0.03
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
Daycare			
Project Construction[d]	0.01	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
School			
Project Construction[d]	<0.01	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

NOTES:

[a] MEI for each receptor type are:
offsite residents = Residence on Christopher Drive
onsite residents = Existing Aldea Housing remaining and occupied in Initial Phase construction
daycare = Kirkham Child Development Center
school = Clarendon Alternative Elementary

[b] Construction risk is from DPM exposure. There is no published DPM REL for acute risk.

[c] Hazard Impact and $PM_{2.5}$ annual concentration represent worst year of exposure not a summation.

[d] Exposure durations:
residents = duration of construction, ~1 year
daycare = duration of construction, ~1 year
school = duration of construction, ~1 year

SOURCE: ESA, 2019 (see Appendix AIR)

Non-Cancer Health Hazard Exposure at Existing Receptors from Construction of the Irving Street Arrival, RAB, Initial Aldea Housing Densification, and New Hospital Projects, and Initial Phase Improvements

For purposes of this analysis, non-cancer health hazards associated with construction of each of the Initial Phase projects, including Irving Street Arrival, RAB, and Initial Aldea Housing Densification, as well as the New Hospital, were estimated. Hazards associated with construction of the Initial Phase improvements would not be expected to substantially further contribute to the estimated hazards.

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the predicted TAC concentration from the Initial Phase projects to a published reference exposure level (REL) that could cause adverse health effects. The RELs are published by OEHHA based on epidemiological research. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The construction emissions from the Irving Street Arrival, RAB, New Hospital, and Initial Aldea Housing Densification projects are for the largest part respirable, therefore, non-inhalation pathways were not considered. The impact is considered to be significant if the overall HI is greater than 1.0.

The chronic reference exposure level for DPM was established by the California OEHHA as 5 $\mu g/m^3$ (OEHHA, 2019). Thus, the construction-related annual concentration of DPM cannot exceed 5.0 $\mu g/m^3$; resulting in a chronic acute HI of greater than 1.0 (i.e., DPM annual concentration/5.0 $\mu g/m^3$). There is no acute REL for DPM.

As shown in Tables 4.2-11 through 4.12-14, the unmitigated chronic HI from construction of the Irving Street Arrival, RAB, New Hospital, and Initial Aldea Housing Densification would each be 0.09 or less, while as shown in Tables 4.2-15 through 4.12-18, the chronic HI would each be less than 0.01 with implementation of CPHP Mitigation Measure AIR-1a. The impact related to chronic health risk from construction emissions would be less than significant.

Because construction only considers the risk from DPM emissions and because there is no acute REL for DPM, only the chronic risk from DPM is analyzed.

Mitigation: None required.

$PM_{2.5}$ Concentrations Associated with Construction of the Irving Street Arrival, RAB, Initial Aldea Housing Densification, and New Hospital Projects, and Initial Phase Improvements

For purposes of this analysis, health effects related to $PM_{2.5}$ concentrations associated with construction of each of the Initial Phase projects, including Irving Street Arrival, RAB, and Initial Aldea Housing Densification, as well as the New Hospital, were estimated. $PM_{2.5}$ concentrations associated with construction of the Initial Phase improvements would not be expected to substantially further contribute to the estimated $PM_{2.5}$ concentrations.

Dispersion modeling was used to estimate project-related concentrations of $PM_{2.5}$ at the sensitive receptors. The BAAQMD Air Quality Guidelines requires inclusion only of $PM_{2.5}$ exhaust emissions for the analysis of construction exposure because the fugitive dust emissions are addressed under BAAQMD dust control measures which are required by law to be implemented during project construction. The unmitigated annual $PM_{2.5}$ concentrations for each of the four projects are reported in Tables 4.2-11 through 4.2-14. With the exception of the initial Aldea Housing Densification project, the Initial Phase projects would not result in annual $PM_{2.5}$ concentrations at the nearest receptors that would exceed the BAAQMD thresholds. The unmitigated annual $PM_{2.5}$ concentrations from construction activities would be 0.42 $\mu g/m^3$ for the residents occupying the existing Aldea Housing during the initial Aldea Housing Densification project (see Table 4.2-14). With implementation of CPHP Mitigation Measure AIR-1a, the annual $PM_{2.5}$ concentrations from construction activities would be reduced to 0.03 $\mu g/m^3$ (see Table 4.2-18). Thus, the annual $PM_{2.5}$ concentrations due to construction and operation of the Irving Street Arrival, RAB, New Hospital, and Initial Aldea Housing Densification would each be below the BAAQMD threshold of 0.3 $\mu g/m^3$ and would be less than significant with mitigation.

Mitigation: Implement CPHP Mitigation Measure AIR-1a. (Aldea Housing Densification)

Significance after Mitigation: Less than Significant.

Impact AIR-4: Campus site operations under the CPHP could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater. (Less than Significant with Mitigation)

CPHP

The proposed CPHP would result in development that would generate operational emissions of TACs and result in localized contributions to $PM_{2.5}$ concentrations from a variety of sources, including mobile sources; and stationary sources, including diesel generators, laboratory fume hood stacks and, to a lesser extent, natural gas combustion. Operational detail with respect to locations of TAC sources that may be included in the New Hospital and CPHP Future Phase projects is unavailable for determining risk levels quantitatively. However, a qualitative analysis is provided that considers potential TAC sources and mitigation is identified where the potential for significant impact may exist. It should be noted that the New Hospital and all CPHP Future Phase projects, would undergo separate CEQA analysis, as appropriate, at the time of project-specific proposal.

Operational TAC emissions that would be generated under the CPHP could impact existing sensitive receptors in the campus site vicinity, as well as proposed new residential uses that would be developed on the campus site under the CPHP (e.g., proposed new Aldea Housing, and proposed West Side Housing along the future extension of Fourth Avenue). The effects of the TAC emissions from future sources are discussed below.

Diesel Emergency Back-up Generators Air Toxics

New diesel emergency back-up generators would be required as a safety egress requirement for new buildings constructed under the proposed CPHP that would exceed 75 feet in height. Any new diesel generators larger than 50 HP would require a permit from BAAQMD and must comply with the Air Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. As a practical matter, BAAQMD will not issue a permit for a new generator that results in an operational cancer risk greater than 10 in one million. Accordingly, health risk impacts from new emergency generators would be considered less than significant.

Laboratory Air Toxics

Additional laboratory uses developed under the proposed CPHP would result in increases in chemical usage and associated TAC emissions. With the exception of RAB which is discussed below, details regarding new laboratory space, fume hoods, and chemical use in future non-residential buildings are not available at this time. Therefore, a qualitative analysis of potential health risks is provided. BAAQMD's Rule 2-1 exempts teaching laboratories used exclusively for classroom experimentation and/or demonstration. Given the potential for future development under the proposed CPHP to include both teaching laboratories as well as research laboratories, the potential exists for the requirements of Rule 2-1 not to apply. Consequently, the potential health risks from laboratory TAC emissions is considered potentially significant. Accordingly, **CPHP Mitigation Measure AIR-4a**, below, is identified to ensure that new laboratory space added to the campus site under the proposed CPHP would not result in a significant health risk.

Natural Gas Combustion of the CUP

Natural gas combustion results in emissions of benzene, formaldehyde, and toluene. Under the proposed CPHP, there would be an incremental increase in these TAC emissions due to an increase in natural gas combustion at the existing CUP. As shown in Table 4.2-19, the maximum increase in cancer risk from increased CUP operations due to the proposed Irving Street Arrival and RAB projects[15] would be 0.01 in one-million based on net new increase in building space over existing conditions. Scaling this risk based on the increase in net new square feet of development[16] between existing and buildout of the CPHP, the increased cancer risk from CUP emissions under full buildout of CPHP would be 0.3 in one million, which would be well below the significance threshold of 10 in one million. Further, this estimate is conservative because the available capacity of the CUP is less than the increase in campus site square footage that was assumed to require additional energy demand from the CUP. Therefore, health risk impacts from natural gas combustion resulting from operation of new development under the proposed CPHP would be less than significant.

Increased Operational Diesel Truck Deliveries

Additional campus development under the CPHP would generate increases in vendor deliveries to the campus site that would include diesel-powered trucks. It is estimated that such deliveries could increase from a total of 40 trips per day under existing conditions at the campus site to approximately 65 trips per day under full buildout of the CPHP. While the additional 25 truck trips per day would have a variety of access points throughout the campus site (there are presently seven existing loading areas distributed throughout the campus site), it is anticipated that many of them would likely access the campus site via the primary delivery corridor off Medical Center

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[15] The proposed Aldea Housing Densification would not be served by the CUP.

[16] Excluding Aldea Housing square footage, as it would not be served by the CUP.

Way to access loading areas that serve Long Hospital and Central Receiving. These additional trips would increase local DPM emissions within the loading dock access points. Construction of the New Hospital may also result in modifications to the configuration of these loading areas; however, in the absence of project-specific details, the specific changes cannot be reliably modeled at this time to estimate resultant health risks. Therefore, **CPHP Mitigation Measure AIR-4b** is identified to ensure that increased DPM concentrations from vendor deliveries under the CPHP would not result in a significant health risk.

CPHP Mitigation Measure AIR-4a: Laboratory Fume Hood Emission Control

For any individual project that contains more than 25,000 square feet of emissions-generating laboratory space within a building and 50 fume hoods, UCSF shall conduct a health risk screening analysis and obtain a permit from BAAQMD for the proposed individual projects; this permit may be required either prior to or as a condition of approval of the proposed individual project. In accordance with BAAQMD Rules 2-1 and 2-5, new sources of emissions must implement Best Available Control Technology for Toxics (T-BACT) if individual source risks exceed 1.0 in a million for cancer and/or chronic hazard index is greater than 0.20. Additionally, a permit will be denied if project cancer risk exceeds 10.0 in a million or if the chronic or acute hazard index exceeds 1.0.

CPHP Mitigation Measure AIR-4b: Design for Diesel Delivery Truck Emissions Minimization

UCSF shall incorporate the following health risk reduction measures into the project design and construction contracts (as applicable) in order to reduce the potential health risk due to exposure to toxic air contaminant emissions from diesel trucks. Emissions from CPHP-associated diesel trucks shall be reduced through implementing the following measures, as feasible:

1. Install electrical hook-ups for diesel trucks Transportation Refrigeration Units (TRU) at loading docks.
2. Require trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards.
3. Require truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels.
4. Prohibit trucks from idling for more than two minutes to the extent feasible.
5. Establish truck routes to avoid sensitive receptors in the project to the extent feasible. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented

Significance after Mitigation: Less than Significant.

Irving Street Arrival, RAB, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

The following assessment focuses on potential incremental cancer risk, non-cancer health hazard exposure, and $PM_{2.5}$ concentrations associated with operation of proposed Irving Street Arrival, RAB, and Initial Aldea Housing Densification Projects. Operations of other Initial Phase improvements are not expected to generate operational emissions of TACs or result in localized contributions to $PM_{2.5}$ concentrations, and consequently, not discussed further. Operational detail with respect to locations of TAC sources of the New Hospital and Future Phase projects is unavailable for determining risk levels quantitatively. Therefore, the project-level assessment of potential TAC sources is limited to the proposed Irving Street Arrival, RAB, and initial Aldea Housing Densification projects. It should be noted that the New Hospital and all Future Phase projects will undergo separate environmental review under CEQA

Incremental Cancer Risk from Operation of the Irving Street Arrival, RAB, and Initial Aldea Housing Densification

For purposes of this analysis, potential incremental cancer risks associated with operation of the RAB were estimated. As discussed below, no new TAC sources such as emergency generators are included in the Irving Street Arrival or for the Aldea Housing Densification projects and therefore, these projects are not analyzed below for potential cancer risk from operational TAC sources.

Emissions calculations and air dispersion modeling was completed for the new emergency diesel generator for the proposed RAB, the increase in natural gas combustion at the CUP to accommodate demand from building expansion (for the proposed RAB alone, as the proposed Aldea Housing would not be served by the CUP, and the Irving Street Arrival would not result in increased CUP demand), and the new building fume hoods at the RAB. The full chemical inventory and calculated risk by each source is detailed in Appendix AIR. A summary of the risk results from operations of the RAB is presented in **Table 4.2-19**. The estimated cancer risk for a 30-year lifetime exposure from operation of the RAB project would be 0.26 per million. Thus, this increased cancer risk from operation of the RAB project would be less than significant.

Non-Cancer Health Hazard Exposure at Existing Receptors from Operation of the Irving Street Arrival, RAB, and Initial Aldea Housing Densification

For purposes of this analysis, potential non-cancer health hazards associated with operation of Irving Street Arrival and RAB were estimated. The initial Aldea Housing Densification project was not analyzed, as it does not include a source of operational TAC emissions.

Similar to the approach taken for assessment of the CPHP health effects, the operational emissions from the Initial Phase projects are for the largest part respirable, therefore non-inhalation pathways were not considered. The impact would be considered to be significant if the overall HI is greater than 1.0.

Under operations, the emergency diesel generator required for the RAB would produce chronic risk from DPM emissions. For the RAB fume hoods and associated increased operation of the CUP, the chronic and acute from each TAC are individually assessed and can be found in Appendix AIR.

The maximum operational chronic HI impact, as presented in Table 4.2-19, would be less than 0.01. Operation of the Irving Street Arrival and RAB projects are below the project-level chronic HI threshold of 1, and therefore, the impact would therefore be less than significant.

TABLE 4.2-19
ESTIMATED OPERATIONAL HEALTH IMPACTS OF THE RAB

Receptor Type	Cancer Risk	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ Concentration (µg/m3)[d]
Resident – Offsite Receptor				
Project Operations	0.26	<0.01	<0.01	0.01
Significance Threshold	10	1.0	1.0	0.3
Significant (Yes or No)?	No	No	No	No
Resident – Onsite Residence				
Project Operations	0.04	<0.01	<0.01	<0.01
Significance Threshold	10	1.0	1.0	0.3
Significant (Yes or No)?	No	No	No	No
Daycare				
Project Operations[e]	0.01	<0.01	<0.01	<0.01
Significance Threshold	10	1.0	1.0	0.26
Significant (Yes or No)?	No	No	No	No
School				
Project Operations[e]	<0.01	<0.01	<0.01	<0.01
Significance Threshold	10	1.0	1.0	0.3
Significant (Yes or No)?	No	No	No	No

NOTES:

[a] Cancer risk MEI for each receptor type are:
offsite residents = Residences along Edgewood Ave., east of the campus site
onsite residents =UCSF Third avenue housing
daycare = Kirkham Child Care Center
school = Haight Ashbury Community Nursery School

[b] Chronic Hazard Index MEI for each receptor type are:
offsite residents = Residences along Edgewood Ave., east of the campus site
onsite residents = UCSF Third Avenue housing
daycare = Lucia Child Care Center
school = Haight Ashbury Community Nursery School

[c] Acute Hazard Index MEI for each receptor type are:
offsite residents = Residences along Edgewood Ave., east of the campus site
onsite residents = UCSF Third Avenue housing
daycare = Lucia Child Care Center
school = Independence High School

[d] $PM_{2.5}$exposed MEI for each receptor type are:
offsite residents = Residences along Edgewood Ave., east of the campus site
onsite residents = UCSF Third Avenue housing
daycare = Kirkham Child Care Center
school = Haight Ashbury Community Nursery School

SOURCE: ESA, 2019 (see Appendix AIR)

In addition, the acute HI from operations, presented in Table 4.2-19, would also be less than 0.01. The acute HI associated with operation of the Irving Street Arrival and RAB, would be below the project-level threshold of 1 and the impact would therefore be less than significant.

$PM_{2.5}$ Concentrations Associated with Operation of the Irving Street Arrival, RAB and Initial Aldea Housing Densification

For the analysis of operational $PM_{2.5}$ emissions, sources other than combustion exhaust (i.e., particulate from building fume hoods are addressed. Therefore, $PM_{2.5}$ concentrations associated with operation of the RAB project were estimated. The Irving Street Arrival and initial Aldea Housing Densification projects were not analyzed as they do not include a source of operational $PM_{2.5}$ emissions.

The maximum annual average concentration of $PM_{2.5}$ from operation of the RAB project were estimated to be 0.01 ug/m^3 or less for sensitive receptors (Table 4.2-19). Thus, the annual $PM_{2.5}$ concentration due to the operation of RAB project would be below the BAAQMD threshold of 0.3 µg/m^{3,} and would be less than significant.

Mitigation: None required.

Impact AIR-5: The CPHP could conflict with or obstruct implementation of the *2017 Clean Air Plan*. (Less than Significant with Mitigation)

CPHP

The most recently adopted air quality plan in the SFBAAB is the *2017 Clean Air Plan* whose primary goals are to protect public health and to protect the climate (BAAQMD, 2017b). The plan includes a wide range of proposed control measures to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs.

BAAQMD guidance states that lead agencies should consider three questions in assessing consistency with the 2017 CAP: (1) Would the project support the primary goals of the Clean Air Plan? (2) Does the project include applicable control measures from the Clean Air Plan? and (3) Does the project disrupt or hinder implementation of control measures identified in the Clean Air Plan? The proposed CPHP is evaluated relative to each of these questions below.

Support the Primary Goals of the CAP

The first of these questions is whether a project would support the primary goals of the 2017 CAP, which include:

- Attainment of air quality standards;
- Reducing population exposure and protecting public health in the Bay Area; and
- Reducing GHG emissions and protecting the climate.

To meet the primary goals, the CAP recommends specific control measures and actions. These control measures are grouped into various categories and include stationary and area source measures, mobile source measures, transportation control measures, land use measures, and energy and climate measures. The CAP recognizes that to a great extent, community design dictates individual travel mode, and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and GHG emissions from motor vehicles is to channel future Bay Area growth into urban communities where goods and services are close at hand, and people have a range of viable transportation options. To this end, the 2017 Clean Air Plan includes 85 control measures aimed at reducing air pollution in the Air Basin.

Under the CPHP, UCSF would continue to employ its aggressive Transportation Demand Management (TDM) program that includes an extensive shuttle system, among other alternative transportation opportunities and would serve to support the primary goals of the CAP. Based on UCSF’s 2018 employee commute survey, approximately 80 percent of the campus faculty, staff and students commute by means other than driving alone. Key features of UCSF’s existing TDM program include the following:

- 60 shuttles serving 17 locations, with over 2.3 million passengers per year
- 33 vanpools that travel as far as Sacramento and operate using the Green Road Safety System, which improves fuel consumption and safety
- 62 reserved carpool stalls at various sites
- Marin Commute Club buses with about 55 daily riders who live in Marin and Sonoma Counties to the north of San Francisco
- 18 City CarShare vehicles with dedicated parking spaces, along with 1,500 UCSF members who can use these vehicles by scheduling their use on-line
- 18 electric-vehicle charging stations at Parnassus Heights, Mount Zion, and Mission Bay, with plans for another 20 at Mission Bay in the Owens Street Garage and 10 at other locations
- Over 1,900 UCSF users of the ZimRide online carpool matching program
- 972 bicycle parking spaces with another 100 planned at Mission Bay, as well as bike racks on shuttles, a cyclist shower program that allows bicyclists to use UCSF showers at a discount, and other bicycle-related benefits
- More than 400 off-street motorcycle parking stalls in garages and surface parking lots
- An “emergency ride home” program to encourage use of alternative modes of transportation
- Clipper Card (public transit pass) sales at easily accessible locations, including through UCSF’s website
- Close to 1,800 UCSF employees that participate in a pretax transit program, which saved UCSF employees over $700,000 on public transit commute costs in 2013

The Parnassus Heights campus site’s infill location and proximity to transit reduces the distance that students and patients would drive in motor vehicles.

The proposed CPHP’s impact with respect to GHGs is discussed in Section 4.7, *Greenhouse Gas Emissions*. As stated in that discussion, the proposed CPHP would be compliant with the UCSF’s Greenhouse Gas Reduction Strategy. Thus, the CPHP would not result in any significant impacts associated with an increase in GHGs or conflict with measures adopted for the purpose of reducing such emissions.

Applicable Control Measures from the CAP

To meet the primary goals, the Clean Air Plan recommends specific control measures and actions. These control measures are grouped into various categories and include stationary- and area-source measures, mobile-source measures, transportation control measures, land use measures, and energy and climate measures. The Clean Air Plan recognizes that, to a great extent, community design dictates individual travel mode and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and GHG emissions from motor vehicles is to channel future Bay Area growth into communities where goods and services are located nearby and people have a range of viable transportation options. To this end, the Clean Air Plan includes 85 control measures aimed at reducing air pollutants in the SFBAAB.

The measures most applicable to the proposed CPHP are transportation control measures which are identified in **Table 4.2-20**, along with the existing or proposed mechanisms that UCSF would have in place to implement these measures. As discussed in Chapter 4.7, *Greenhouse Gas Emissions*, UCSF currently implements a number of programs and practices to promote sustainability at the campus, including TDM, energy supply and efficiency, water supply and conservation, and solid waste reduction and recycling. Under the proposed CPHP, UCSF would continue to implement, and update as needed, these sustainability programs and practices at the Parnassus Heights campus site.

The high availability of viable transportation options would ensure that employees, patients and visitors could bicycle, walk, and ride transit to and from the campus site instead of taking trips via private automobile. These features ensure that the CPHP would reduce growth in automobile trips and vehicle miles traveled.

The proposed CPHP includes sustainability measures that would serve to implement control measures of the 2017 CAP, including the land use/local impact measures and energy/climate measures of the 2017 CAP. The proposed development would be subject to a number of sustainability requirements, including the California CalGreen Code. The proposed RAB would also comply with the UC *Policy on Sustainable Practices*, which requires new construction meet a minimum standard of LEED-NC Silver and strive for LEED-NC Gold when possible, requires 20 percent better energy performance than Title 24 (and strives to achieve 30 percent), and requires new laboratory buildings meet Labs21 Environmental Performance Criteria.[17] This would be achieved through incorporation of a variety of design features and implementation of practices during construction and operation to provide energy and water conservation and efficiency, encourage alternative transportation, promote a healthy indoor environment, minimize waste, and maximize recycling opportunities.

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[17] Labs21 Environmental Performance Criteria is a rating system specifically designed for laboratory facilities that is based on the LEED Green Building Rating System.

TABLE 4.2-20
CPHP CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Existing or Proposed Implementation Mechanism	Consistency of Proposed CPHP with Measure
TR1 – Clean Air Teleworking Initiative	UCSF provides on-line courses for many of its offerings. Remote computer access available for access available for most employees.	Yes
TR2 – Trip Reduction Programs	UCSF implements its Transportation Demand Management (TDM) programs.	Yes, with implementation of existing TDM programs, and mitigation measures identified in this EIR
TR3 – Local and Regional Bus Service	Transit services within study area include UCSF Shuttle and Muni bus service directly to campus.	Yes
TR4 – Local and Regional Rail Service	Muni light rail station located on Irving Street adjacent to proposed Irving Street Arrival.	Yes
TR5 – Transit Efficiency and Use	UCSF shuttles are free, and City of San Francisco Muni offers Clipper card capability.	Yes
TR7 – Safe Routes to Schools and Safe Routes to Transit	TDM Program includes bicycle parking motorcycle and car-share parking that are designed to serve local area student and visitor trips.	Yes
TR8 - Ridesharing	TDM Program includes a carpool matching program and reserved stalls for carpools.	Yes
TR9 – Bicycle and Pedestrian Access and Facilities	The CPHP proposes a pedestrian overcrossing on Parnassus Avenue that would increase pedestrian access and safety.	Yes
TR10 – Land Use Strategies	The proposed CPHP would implement sustainable design strategies consistent with the regional goals and targets expressed in the *Plan Bay Area Sustainable Communities Strategy*.	Yes
TR13 - Parking Policies	UCSF's TDM Program includes parking permits and meters at all campus parking structures and lots. Anyone driving a vehicle to the campus must pay for parking.	Yes
TR14 – Cars and Light Trucks	In 2018, UCSF added 15 new all-electric, zero-emission transit vehicles to the intercampus shuttle fleet that serves UCSF employees, faculty, students, patients and guests. The long-term goal of for the fleet to be all electric.	Yes
TR15 – Public Outreach and Education	UCSF's TDM Program includes webpage with resources for all modes of transportation along with educational resources; personalized commute planning service; and new employee orientation to transportation resources.	Yes
EN1 – Decarbonize Electricity Production	UCSF has committed to the UC Carbon Neutrality 2025 Initiative to achieve net zero GHG emissions from its electrical demand.	Yes
EN2 – Decrease Electricity Demand	UCSF operates a cogeneration facility that produces electricity and decreases electrical demand from the local utility.	Yes
BL1 – Green Buildings	UCSF has committed to all new building meeting Leadership in Energy and Environmental Design (LEED) system requirements for a Silver rating at a minimum.	Yes
BL2 – Decarbonize Buildings	Implemented through the UC Carbon Neutrality 2025 Initiative to achieve net zero GHG emissions from its electrical demand.	Yes
BL3 – Market Based Solutions	UCSF has several programs to promote energy efficiency and conservation on campus. UCSF implements several energy-saving programs for building retrofits and users.	Yes

TABLE 4.2-20 (CONTINUED)
CPHP CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Existing or Proposed Implementation Mechanism	Consistency of Proposed CPHP with Measure
BL4 – Urban Heat Island	No current identification of designing sites to reduce "heat island" effects or albedo reduction in Greenhouse Gas Reduction Strategy.	Yes, with implementation of proposed mitigation measure
NW2 – Urban Tree Planting	The CPHP contains campus design principles that address planting of shade trees. These design principals would also serve the purpose of the absorption of ambient criteria air pollutants as well as CO_2. As discussed in *Section 4.3 Biological Resources*, removal of landmark trees requires a permit and payment of costs associated with a public hearing and replacement of the tree.	Yes
WA3 – Green Waste Diversion; and WA4 – Recycling and Waste Reduction	UCSF implements a Waste Reduction and Recycling Program that serves all academic, student housing and dining, and faculty and staff housing. UCSF achieved a 78 percent waste diversion rate in 2018.	Yes
WR2 – Support Water Conservation	The UC *Policy on Sustainable Practices* resulted in UCSF implementing a Water Action Plan to reduce growth-adjusted potable water consumption 36 percent by 2025, when compared to a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08. The Campus strives to reduce potable water used for irrigation by converting to recycled water, implementing efficient irrigation systems, drought tolerant planting selections, and/or by removing turf.	Yes

Although for most part, the proposed CPHP would be consistent with the relevant control measures of the 2017 Clean Air Plan, because there is one control measure in the Clean Air Plan to address urban heat island effect with which the CPHP as proposed is not consistent, this impact is considered potentially significant. Therefore a mitigation measure is set forth below to address this potentially significant impact.

With elements identified as part of the proposed CPHP, the Greenhouse Gas Reduction Program, TDM Program, and implementation of mitigation measures identified in this EIR, the proposed CPHP would be consistent with applicable control measures in the 2017 Clean Air Plan.

Disruption or Hindrance of CAP Control Measures

Examples of a project that could cause the disruption or delay of Clean Air Plan control measures are projects that would preclude the extension of a transit line or bike path or projects that propose excessive parking beyond City parking requirements. The proposed CPHP would maintain the existing character of the campus site, which includes hospitals, medical research facilities, instructional space, and residential uses within a dense, walkable urban area near a concentration of local transit service. It would not preclude the extension of a transit line or a bike path or any other transit improvement. Thus, the CPHP would not disrupt or hinder implementation of control measures identified in the Clean Air Plan.

In summary, with the mitigation identified below to ensure consistency with the Clean Air Plan control measure addressing urban heat island effect, the proposed CPHP would not conflict with, or obstruct implementation of the *2017 Clean Air Plan*, and the impact would be less than significant.

> **CPHP Mitigation Measure AIR-5: Implement "cool roof and pavement" design elements**
>
> UCSF shall implement "cool parking" that promotes the use of cool surface treatments for new parking facilities, as well existing surface lots undergoing resurfacing. Additionally, new building construction shall include low-albedo roofing materials to the extent it can reduce energy demand.
>
> **Significance after Mitigation:** Less than Significant.

Irving Street Arrival, RAB, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

The impact of the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase Improvements with respect to GHG emissions is discussed in Section 4.7, *Greenhouse Gas Emissions*. As stated in that discussion, the proposed CPHP would be compliant with the UCSF's Greenhouse Gas Reduction Strategy. Thus, the CPHP would not result in any significant impacts associated with an increase in GHGs or conflict with measures adopted for the purpose of reducing such emissions.

Although for most part, these proposed Initial Phase projects and improvements would be consistent with the relevant control measures of the 2017 Clean Air Plan, because there is one control measure in the Clean Air Plan to address urban heat island effect with which the Initial Phase projects as proposed would not be consistent, this impact is considered potentially significant. Therefore, the same mitigation measure identified for the CPHP to implement "cool roof and pavement" design elements is also identified for these Initial Phase projects and improvements, if feasible, given that rooftop mechanical equipment and or parking may limit UCSF's ability to set forth below to address this potentially significant impact.

With elements identified as part of these Initial Phase projects and improvements, the Greenhouse Gas Reduction Program, TDM Program, and implementation of mitigation measures identified in this EIR, these Initial Phase projects and improvements would be consistent with applicable control measures in the 2017 Clean Air Plan.

> **Mitigation:** Implement CPHP Mitigation Measure AIR-5
>
> **Significance after Mitigation:** Less than Significant.

Cumulative Impacts

The following analysis addresses the potential cumulative air quality impacts associated with the proposed CPHP. Impact AIR-5, above, addresses potential impacts with respect to consistency with the BAAQMD 2017 Clean Air Plan. Because the 2017 Clean Air Plan focuses on reducing population exposure to air pollutants throughout the region, the assessment in Impact AIR-5 is a cumulative analysis as it assesses consistency with a region wide air quality plan. Therefore, a separate cumulative assessment of consistency with the 2017 Clean Air Plan is not required.

Impact C-AIR-1: Implementation of the CPHP combined with cumulative development in the project area would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. (Significant and Unavoidable with Mitigation)

BAAQMD developed thresholds of significance for both construction and operation with consideration of individual project emission levels that would be cumulatively considerable. If a project exceeds the identified project significance levels, then its emissions would be cumulatively considerable. The analysis in Impact AIR-1 demonstrates that, with mitigation, the project's construction emissions would not exceed emission thresholds for ROG, NO_X, PM_{10} or $PM_{2.5}$.

However, the analysis under Impact AIR-2 (Table 4.2-9) shows that operational emissions under the CPHP would exceed emission thresholds for PM_{10}. Therefore, emissions of PM_{10} from the CPHP would result in a cumulatively considerable contribution to a cumulative air quality impact and the cumulative impact would be significant. CPHP Mitigation Measure AIR-2a: BAAQMD-Suggested Operational Measures and CPHP Mitigation Measure AIR-2b: TDM Program Enhancements are identified to reduce operational emissions to the degree feasible. However, CPHP Mitigation Measures AIR-2a and -2b would not result in the 37 percent reduction necessary for PM_{10} to reduce the impact to a less-than-significant level. Therefore, the cumulative impact of criteria air pollutant emissions under the full CPHP would be significant and unavoidable.

Mitigation: Implement CPHP Mitigation Measure AIR-2a and AIR-2b.

Significance after Mitigation: Significant and Unavoidable.

Impact C-AIR-2: Implementation of the CPHP could contribute considerably to cumulative emissions of TACs and $PM_{2.5}$ that could expose sensitive receptors to substantial pollutant concentrations or health risks. (Less than Significant with Mitigation*)*

Construction

There is one reasonably foreseeable off-site cumulative construction project in the project vicinity: the seismic retrofit of 350 Parnassus Avenue which would occur at approximately the same time as the Irving Street Arrival construction in 2022. Additionally, cumulative emissions of TACs and $PM_{2.5}$ from construction would be associated with the proposed Initial Phase projects and other UCSF projects within the campus site that were previously approved under the 2014 LRDP. Most notably, the demolition of the LPPI building, which would be necessary to accommodate development of the New Hospital, would occur in in 2022. The only notable contemporaneous CPHP construction project during 2022 would be the proposed Irving Street Arrival which would undergo construction work during the same year. These two activities would occur within approximately 200 feet of each other on either side of Parnassus Avenue. Receptors potentially affected by the three projects' demolition and construction activities in 2022 would be the existing residences on Irving Street between Arguello Boulevard and 2nd Avenue. Irving Street receptors would be 450 feet away from demolition activities of the LPPI and shielded by the intervening Medical Building 1, an 8-story structure.

As shown in Table 4.2-15 under Impact AIR-3, the maximum mitigated increase in cancer risk from construction activities at the campus site from the Irving Street Arrival project, would be approximately 2 in one million, or about one-fifth of the threshold for significant health risk exposure. As reported in the 2014 LRDP FEIR, the incremental cancer risk associated with construction and demolition inclusive of the LPPI, was estimated to be 0.51 in one million. Therefore, with implementation of **CPHP Mitigation Measures AIR-1a** and **-1b,** cumulative health risks from the construction of Initial Phase projects would be less than significant with mitigation.

Operation

As stated in Section 4.2.1 *Environmental Setting*, the most recent citywide modeling results indicate that the Parnassus Heights campus site and its surrounding area are not located within an APEZ, or a health vulnerable zip code. The nearest APEZ to the campus site is along Lincoln Way, west of 5th Avenue. Health risks from operations at the Parnassus Heights campus site under the 2014 LRDP were estimated in the 2014 LRDP Final EIR (UCSF, 2014) to be approximately 10 in one million incremental cancer cases at the most impacted on-site receptor. This risk estimate includes operation of cumulative sources inclusive of stationary sources such as operations of the CUP as well as from fume hood emissions and from high-volume roadways in the area (Parnassus Avenue). When added to the projected increased cancer risks from the project-level analysis presented in Table 4.2-19, resultant increased cancer risk would be well below the cumulative threshold of 100 in one million. It should be noted that the approximately 10 in one million incremental cancer risk estimated in the 2014 LRDP Final EIR and used in this impact analysis likely overstates the less than significant cumulative TAC emission risk associated with the CPHP for two reasons. First, as noted in the 2014 LRDP Final EIR, 4.46 in one million of that risk is based upon an 1989 calculation of risks from fume hoods at Parnassus Heights, and this risk is likely markedly lower in 2020 because of the substantial reduction in chemical use due to microchemistry techniques implemented and improved ventilation systems. Second, some of the risk carried forward from the 2014 LRDP Final EIR is related to 2014 LRDP projects that have not been implemented and are now part of the CPHP.

As described by BAAQMD, USEPA considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk. A cumulative cancer risk of 100 in one million is also used by the City of San Francisco for projects within its jurisdiction to determine the location of APEZ's. When a project is not located within an APEZ, the City of San Francisco applies a project level contribution of 10 in one million to represent a cumulatively considerable contribution. Because the cumulative increase in cancer risk from all sources would be well below 100 in one million and because the project-level contribution would be less than 10 in one million, the CPHP's cumulative impact to local health risk and hazards would be reduced to less than significant with identified mitigation.

Additionally, under the Community Air Risk Evaluation (CARE) program, BAAQMD identified communities in the Bay Area subject to high TAC emissions, with sensitive populations that could be affected by them. The most recent CARE retrospective document (BAAQMD, 2020a) indicates that there are no cumulatively impacted communities within five miles of the campus site. Given that the proposed CPHP contributions to localized health risk would be less than significant with mitigation, as described in Impact AIR-3 for construction and in Impact AIR-4 for operations, and that there are no impacted CARE communities in the campus site vicinity, the CPHP's cumulative impact to local health risk and hazards would be reduced to less than significant with identified mitigation.

Mitigation: Implement CPHP Mitigation Measures AIR-1a and AIR-1b.

Significance after Mitigation: Less than Significant.

4.2.4 References

American Cancer Society, 2014. *Lifetime Risk of Developing or Dying from Cancer*, last revised October. 1, 2014, available online at http://www.cancer.org/cancer/cancerbasics/lifetime-probability-of-developing-or-dying-from-cancer. Accessed June, 2020.

Atmospheric Dynamics, Inc., 2018. Memorandum Subject: Draft Fume Hood Emissions Quantification Methodology (Revised). December 3, 2018.

Atmospheric Dynamics, Inc., 2019. Health Risk Assessment Final Report Submittal UCSF Mission Bay Campus. May 2019.

BAAQMD, 2009. *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October, 2009, p. 67, http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en, accessed December, 2019.

BAAQMD, 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards. May 2011.

BAAQMD, 2013. *2012 Air Monitoring Network Plan*, July 2013, www.baaqmd.gov/Divisions/Technical-Services/Ambient-Air-Monitoring/AAMN-Plan.aspx; p. 30

BAAQMD, 2015. Standards and Attainment Status, 2015, http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm. Accessed December, 2019.

BAAQMD, 2017a. *CEQA Air Quality Guidelines*. May 2017. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

BAAQMD, 2017b. *Clean Air Plan, Spare the Air, Cool the Climate,* January 10, 2017. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/baaqmd_2017_cap_draft_122816-pdf.pdf?utm_campaign=CAP+2017+Draft&utm_medium=email&utm_content=article3_link1. Accessed June 9, 2020

BAAQMD, 2018. Bay Area Air Quality Management District Engineering Division Permit Handbook. October 2018. Available: http://www.baaqmd.gov/~/media/files/engineering/permit-handbook/baaqmd-permit-handbook.pdf.

BAAQMD, 2019. Bay Area Air Quality Management District Detail Pollutants – Abated, Most Recent P/O Approved (2019), UCSF/Parnassus (P# 2478). Received via Stationary Source Inquiry Form, Available: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools.

BAAQMD, 2020a. Bay Area Air Pollution Summary, 2014 – 2018. Available online at: https://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed June 10, 2020.

BAAQMD, 2020b Email from Richard Lam of BAAQMD to Chris Sanchez of Environmental Science Associates, April 1, 2020.

California Air Resources Board (CARB), 1998. Fact Sheet, "The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines," October 1998.

CARB, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005. Available at http://www.arb.ca.gov/ch/handbook.pdf. Accessed December, 2019.

CARB, 2007. "Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution," November 2007.

CARB, 2009. *California Almanac of Emissions and Air Quality - 2009 Edition*, Table 5-44 and Figure 5-12, http://www.arb.ca.gov/aqd/almanac/almanac09/chap509.htm. Accessed December, 2019.

CARB, 2011. Recommended Area Designations for the 2010 Nitrogen Dioxide Standards, Technical Support Document, January 2011, http://www.airquality.org/plans/federal/no2/NO2Enclosure_1.pdf. Accessed December, 2019.

CARB, 2019 Overview: Diesel Exhaust and Health, https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health, accessed December, 2019.

Code of Federal Regulations (CFR) 54 Federal Register 38044. September 14, 1989.

Fehr and & Peers, 2020. *Comprehensive Parnassus Heights Plan - Transportation Demand Management Measure Identification and Effectiveness Assessment,* June 11.

Pollution Engineering, 2006. *New Clean Diesel Fuel Rules Start*. July, 2006.

Office of Environmental Health Hazard Assessment, 2019. Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. September 19, 2019. Available: https://ww3.arb.ca.gov/toxics/healthval/contable.pdf.

San Francisco County Transportation Authority, 2015. Chained Activity Modeling Process version 4.3.0, Average Daily Traffic Volumes, provided to ESA 2015.

San Francisco Department of Public Health, 2008. Assessment and Mitigation of Air Pollutant Health Effect from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review, May 6, 2008, p. 7.

San Francisco Department of Public Health, and San Francisco Planning Department, *San Francisco Citywide Health Risk Assessment: Technical Support Documentation*, February 2020., https://www.sfdph.org/dph/files/EHSdocs/AirQuality/Air_Pollutant_Exposure_Zone_Technical_Documentation_2020.pdf, Accessed April 1, 2020.

USEPA, 2010a. Fact Sheet: Revisions to the Primary National Ambient Air Quality Standard, Monitoring Network, and Data Reporting Requirements for Sulfur Dioxide, June 2, 2010; https://www.epa.gov/sites/production/files/2016-05/documents/final_primary_naaqs_factsheet.pdf. Accessed June, 2020.

USEPA, 2010b. *Fact Sheet Revisions to Lead Ambient Air Quality Monitoring Requirements*, https://www.gsweventcenter.com/Draft_SEIR_References/2010_1210_Leadmonitoring_FS_USEPA.pdf. Accessed June, 2020.

USEPA, Nitrogen Dioxide Designations June 2017, *https://www.epa.gov/nitrogen-dioxide-designations/2010-nitrogen-dioxide-standards-state-recommendations-and-epa*, accessed June 9, 2020.

Western Regional Air Partnership, 2006. *WRAP Fugitive Dust Handbook,* September 7, 2006. Available online at wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf. Accessed December, 2019.

Western Regional Climate Center (WRCC), 2016. website query, http://www.wrcc.dri.edu/htmlfiles/westwinddir.html#CALIFORNIA. Accessed on 2020.

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4.3 Biological Resources

This section assesses the potential for construction and operation of campus development under the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts on biological resources. The section includes a description of the existing environmental setting as it relates to biological resources; provides a regulatory framework that discusses applicable University, federal, State, and local regulations; identifies criteria used to determine impact significance; and discusses potential impacts, and regulatory mechanisms and/or feasible mitigation measures, as necessary, to reduce potential impacts.

4.3.1 Environmental Setting

The campus site is located in the City of San Francisco between the Pacific Ocean and the Bay. The lowest elevation of the campus site is at the north campus site boundary on Irving Street [approximately 300 feet above sea level (asl)] and the highest elevation is at over 900 feet asl on Mount Sutro in the south portion of the campus site, declining to approximately 700 feet asl along the campus site south boundary at Clarendon Avenue. The temperate climate of this area is Mediterranean in nature, with relatively mild, wet winters and warm, dry summers. The high diversity of vegetation and wildlife found in the region is a result of soil, topographic, and microclimate variations that combine to create unique species and biological communities. A long history of uses has altered the natural environment of San Francisco, and the rapid pace of development in the region, has reduced the extent of natural communities and habitat for local flora and fauna.

Vegetation Communities and Wildlife Habitats

The Parnassus Heights campus site occupies about 107 acres of land at the base of and upon Mount Sutro in the Inner Sunset mixed-use neighborhood. About 46 acres of the campus site are developed with campus facilities, and 61 acres in the central and southern portions of the campus site are not developed, and are designated and preserved as the Mount Sutro Open Space Reserve (Reserve). The vegetation communities and wildlife habitats on the campus site are described below.

Urban

Urban areas include those portions of the campus site that are developed with buildings, roadways, utilities and other built features. Wildlife species utilizing urban areas are typically well-adapted to the presence of humans and their activities. Urban wildlife species expected on the campus site include common raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virgiana*), and non-native species such as Norway rat (*Rattus norvegicus*) and feral cats. Other species which utilize urban areas in San Francisco include red-tailed hawk (*Buteo jamaicensis*), which prey on rodents, and Cooper's hawk (*Accipiter cooperii*) and peregrine falcon (*Falco peregrinus anatum*), which prey almost exclusively on small-to-medium-sized birds. Bats may also colonize abandoned and disused buildings within the campus site.

Landscaped

Landscaped areas support a variety of ornamental trees, shrubs and maintained non-native vegetation on the campus site. Landscaped areas in an otherwise urban environment can provide cover, foraging, and nesting habitat for a variety of bird species as well as reptiles and small mammals, especially those tolerant of disturbance and human presence. Landscaped areas on the campus site include a grove of coast redwood (*Sequoia sempervirens)* adjacent to the Dental Clinics building, and additional planted redwoods and other trees and landscaped vegetation at various locations within the campus core and Aldea Housing complex. Birds which may be found in landscaped vegetation include American robin (*Turdus migratorius*), house finch (*Carpodacus mexicanus*), dark-eyed junco (*Junco hyemalis*), western scrub jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), and Anna’s hummingbird (*Calypte anna*), as well as non-native birds such as house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*). Reptiles using this type of habitat, particularly in areas bordering natural lands, may include western terrestrial garter snake (*Thamnophis elegans*) and western fence lizard (*Sceloporus occidentalis*). Other wildlife present in these landscaped areas include striped skunk (*Mephitis mephitis*), raccoon, Virginia opossum, roosting bats as well as Botta’s pocket gopher (*Thomomys bottae*) and other small rodents.

Reserve

Forest habitat occurs throughout the Reserve on the Parnassus Heights campus site. Dominant tree species are non-native blue gum eucalyptus (*Eucalyptus globulus*) and Monterey cypress (*Cupressus macrocarpa*), which is native to California, but not to San Francisco. Coast live oak (*Quercus agrifolia*) and redwood trees, which are native to San Francisco, are also present. Redwoods are also present in other areas of campus (see Landscaped, above).

Understory vegetation in the Reserve included nasturtium (*Nasturtium* sp.), poison oak (*Toxicodendron diversilobum*), English ivy (*Hedera helix*), Himalayan blackberry (*Rubus armeniacus*), non-native grasses, and, in the restoration area near the summit, native toyon (*Heteromeles arbutifolia*) and coyote brush (*Baccharis pilularis*).

Several avian species are common to eucalyptus and cypress forest, including native species such as American robin, chestnut-backed chickadee (*Poecile rufescens*), pygmy nuthatch (*Sitta pygmaea*), Anna’s hummingbird, and California towhee (*Pipilo crissalis*). The non-native eastern gray squirrel (*Sciurus carolinensis*) is also prevalent. Special-status species that could be present in these areas include overwintering monarch butterfly (*Danaus plexippus*) populations, special-status and common bats, and nesting raptors such as red-shouldered hawk (*Buteo lineatus*) and red-tailed hawk. Coyotes (*Canis latrans*) have been sighted occasionally in Golden Gate Park and Presidio areas of San Francisco and could appear in the Reserve.

Over the years, drought, disease, and the age of the trees have led to a declining trend in the overall health of the forest in the Reserve. UCSF determined there were too many trees in the Reserve to support a healthy canopy, and that more small-diameter trees were needed to diversify the forest. To address this, UCSF developed the Mount Sutro Open Space Reserve Vegetation Management Plan, a 20-year plan to achieve short- and long-term goals to improve ecosystem health, regenerate the forest, maintain and ensure public access to the Reserve, and minimize fire risk (see Section 4.3.2 for more detail). In addition, independent of the Vegetation Management Plan, UCSF staffs two certified arborists, and conducts ongoing maintenance throughout the Reserve and its trails, including, but not limited to, management of overgrown vegetation, bi-annual removal of invasive sprouts, and scheduled tree pruning.

Sensitive Natural Communities, Including Wetlands

The California Natural Diversity Database (CNDDB) reports no sensitive natural community occurrences on the campus site (CDFW, 2019). No potentially jurisdictional wetlands or daylighted surface waters are located on the campus site. See also discussion of Wetlands and Other Waters of the United States, below.

Wildlife Movement Corridors

Wildlife movement corridors link habitat areas and mitigate the effects of fragmentation by allowing animals to move between remaining habitats, in turn allowing depleted populations to be replenished and promoting genetic exchange between separate populations. Due to urban development of the San Francisco Peninsula, remaining wildlife habitat is largely limited to disconnected small parks and open space areas. These areas sustain corridors for flying animals, including butterflies, bats, and birds, but are difficult for mammals, reptiles and amphibians to reach, due to rugged terrain, urbanization, vehicular traffic, changes in vegetation, or areas of human disturbance.

The San Francisco Peninsula is an important migratory stopover for birds along the Pacific Flyway—one of the four major migratory routes in North America. Raptors, songbirds, shorebirds and waterfowl stop in San Francisco, including Golden Gate Park, Lake Merced, the Presidio, and the Reserve during their fall and spring migrations. Numerous areas on the Parnassus Heights campus site offer suitable and attractive habitat for birds and butterflies to forage and rest along their migration route. While San Francisco's location on the Pacific Flyway enhances the importance of the City's open spaces to migratory birds, these areas are disconnected and do not constitute a wildlife movement corridor.

Special-Status Species

For the purpose of this EIR, special-status species include:

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or State endangered species acts;
- Species that are candidates for listing under either federal or State law;

- Species designated by the USFWS as species of concern or by the CDFW as species of special concern;[1]
- Species designated as "fully protected" by the State (there are about 35, most of which are also listed as either endangered or threatened);
- Raptors (birds of prey), which are specifically protected by California Fish and Game Code Section 3503.5, thus prohibiting the take, possession, or killing of raptors and owls, their nests, and their eggs;[2] and
- Species, such as candidate species, that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines.

A comprehensive list of the special-status plant and animal species that may occur or have the potential to occur within the campus site was developed based on data obtained from the CNDDB, the California Native Plant Society (CNPS) Electronic Inventory, and the USFWS and other biological literature pertaining to the bioregion. Potential for occurrence was determined to be low, moderate, or high based on habitat suitability, previous special-status species record locations, and current site conditions. These species lists are provided in **Table BIO-1** in **Appendix BIO**. Special-status plants and wildlife recorded within 1 mile of the campus site are shown in **Figure BIO-1** and **Figure BIO-2**, respectively, in **Appendix BIO**.

Special-Status Plants

Table BIO-1 in Appendix BIO presents special-status plant species that occur in the regional vicinity (i.e., the San Francisco North 7.5-minute USGS quadrangle and the seven surrounding quadrangles), and their potential to occur on the campus site. Most special-status plant species are considered to have a low potential to occur due to the developed and disturbed nature of the project site. The Reserve mostly lacks native plants and native vegetation communities, and other areas within the campus site are primarily landscaped.

Prior to development of San Francisco, Mount Sutro supported coastal prairie, valley and foothill grasslands, coastal dunes, and coastal scrub, but these communities are no longer present. Coastal triquetrella, a California Rare Plant Rank 1B.2 moss which occurs on shaded substrate, including gravel, in coastal bluff or coastal scrub communities, is the only special-status plant with a moderate potential to occur in the vicinity of the Parnassus Heights campus site. Coastal triquetrella has been documented on Tank Hill approximately 0.25 mile east of the campus site, and in open spaces near the Douglas Playground, approximately one mile southeast of the campus

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[1] A California species of special concern is one that: has been extirpated from the state; meets the State definition of threatened or endangered but has not been formally listed; is undergoing or has experienced serious population declines or range restrictions that put it at risk of becoming threatened or endangered; and/or has naturally small populations susceptible to high risk from any factor that could lead to declines that would qualify it for threatened or endangered status.

[2] The inclusion of birds protected by Fish and Game Code Section 3503.5 is in recognition of the fact that these birds are substantially less common in California than most other birds, having lost much of their habitat to development, and that the populations of these species are therefore substantially more vulnerable to further loss of habitat and to interference with nesting and breeding than most other birds. It is noted that a number of raptors and owls are already specifically listed as threatened or endangered by State and federal wildlife authorities.

site (CDFW, 2019). It is most likely to occur along roadsides in the Reserve, but could be present in gravelly roadsides that support vegetation in other parts of campus as well.

Special-Status Wildlife

Table BIO-1 in Appendix BIO presents special-status wildlife species known to occur in the region (i.e., San Francisco North and seven surrounding quadrangles), and their potential to occur on the campus site. Of the special-status wildlife listed in Table BIO-1, only species classified as having a moderate or high potential for occurrence on the campus site were considered in the impact analysis. Species addressed in detail include the following:

- Monarch butterfly
- Western bumble bee
- Peregrine falcon and other nesting birds
- Hoary bat, western red bat and other roosting bats

Aside from breeding birds, insects and roosting bats, special-status wildlife species are not likely to occur within the campus site, most of which is highly fragmented and paved or dominated by non-native ornamental or ruderal species, which provide poor habitat for most wildlife. However, monarch butterflies (*Danaus plexippus*) have been known to overwinter in eucalyptus groves of San Francisco and western red bat has been documented in Golden Gate Park foliage. These species and other species with moderate potential to occur are described below.

Monarch butterfly. This insect is a California special animal and the butterfly's overwintering sites near the coast are protected in California because they are considered vulnerable due to their restricted range and relatively limited distribution in California. This species migrates along the Pacific Coast, and often overwinters in wind-protected groves of trees, such as eucalyptus and Monterey cypress, between October and March. CNDDB has documented this species overwintering in the Presidio, Golden Gate Park, Fort Mason, and Telegraph Hill (CDFW, 2019); and they have been recorded on Twin Peaks. However, there are no records of monarchs wintering within the Reserve.

Western bumble bee. This insect is a candidate threatened species in California. It has declined precipitously in recent years, possibly from disease. It may forage on flowers in the ornamental landscaping shrubs or trees on the Parnassus Heights core campus and Aldea Housing complex, or on flowers of trees, shrubs or herbaceous plants in the Reserve. Western bumble bee burrows in soil and does not build hives. It has been recorded in the past within one mile of the campus site in Golden Gate Park, Golden Gate Heights, and Twin Peaks (CDFW, 2019).

Peregrine falcon and other migratory nesting birds. As a result of recovery efforts, peregrine falcon has been de-listed both in California and nationally. It remains a California Fully Protected species. It is known to nest on structures in downtown San Francisco and may nest on tall buildings on the campus site, and forage for pigeons and other birds. Several other raptors are known to nest in San Francisco and likely to nest in the Reserve, including red-tailed hawk, red-shouldered hawk, American kestrel (*Falco sparverius*), Cooper's hawk and great horned owl (*Bubo virginianus*), as well as other migratory special-status and common birds. The federal

Migratory Bird Treaty Act (MBTA) and California Fish and Game Code protect raptors and native migratory birds and breeding birds (see Section 4.3.2, below).

As discussed above, the San Francisco Peninsula is an important migratory stopover for birds along the Pacific Flyway—one of the four major migratory routes in North America. Raptors, songbirds, shorebirds and waterfowl stop in San Francisco, including Golden Gate Park, Lake Merced, the Presidio and the Reserve on the Parnassus Heights campus site during their fall and spring migrations. Trees on the campus site offer suitable and attractive habitat for birds, including special-status birds, to forage and rest along this migration route.

Hoary bat, western red bat, and other roosting bats. Western red bat, a Western Bat Working Group (WBWG) high priority species, has been recorded in Strybing Arboretum of Golden Gate Park, where it roosts in trees. Hoary bat, a WBWG medium priority species, has also been recorded in Strybing Arboretum, within one mile of the Parnassus Heights campus site, and Townsend's big-eared bat has been recorded at Twin Peaks (CDFW, 2019). These and other bat species may roost in tree foliage, under exfoliating bark of trees, in tree cavities, or under roof eaves or inside disused building areas within the city. Bat surveys conducted in natural areas and parks in San Francisco found that the three most commonly encountered species were Mexican free-tailed bat (*Tadaridia brasiliensis*), Yuma myotis (*Lasiurus blossevillii*), and western red bat (Krauel, 2009). Mexican free-tailed bats are widespread throughout the natural areas of San Francisco, while Yuma myotis and western red bat are typically restricted to parks with lakes (Krauel, 2009). The western red bat and hoary bat have a moderate potential to occur in forest edge habitat of the Reserve within the campus site.

Designated Critical Habitat

The USFWS designates critical habitat for certain species listed by the agency as threatened or endangered. "Critical habitat" is defined in Section 3(5)(A) of the federal Endangered Species Act (ESA) as those lands within a listed species' current range that contain the physical or biological features considered essential to the species' conservation, as well as areas outside the species' current range that are determined to be essential to its conservation. The Parnassus Heights campus site is not located within designated critical habitat for any federally listed species.

Wetlands and Other Waters of the United States

There are no wetlands or other waters of the United States or the State of California as defined by Section 404 of the federal Clean Water Act or by the Porter-Cologne Water Quality Control Act, Section 13260 of the California Water Code, within the campus site. The ravine on the eastern side of the Reserve contiguous with the City-owned Greenbelt contains Woodland Creek, an intermittent channel which conveys stormwater flows following storm events, and that may be subject to U.S. Army Corps of Engineers jurisdiction, as an "other water of the U.S." The channel bed, bank or surrounding riparian vegetation would also be subject to CDFW jurisdiction and any disturbance to the channel or riparian vegetation would require a Lake or Streambed Alteration Agreement under Section 1602 of the California Fish and Game Code. Proposed CPHP activities on the Parnassus Heights campus site would not occur within the vicinity of the channel, and therefore, impacts on this channel are not considered further in this analysis.

4.3.2 Regulatory Framework

This section briefly describes University, federal and State laws and regulations, and local plans and policies pertaining to biological resources and wetlands.

Special-Status Species

Federal Endangered Species Act

The federal Endangered Species Act (ESA) protects the fish and wildlife species, and their habitats that have been identified by the USFWS or National Marine Fisheries Service (NMFS) as threatened or endangered. The term "endangered" refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. The term "threatened" refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

The ESA is administered by the USFWS and NMFS. In general, the NMFS is responsible for the protection of ESA-listed marine species and anadromous fishes, whereas listed, proposed, and candidate wildlife, plant species, and fish species are under USFWS jurisdiction. "Take"[3] of listed species can be authorized through either the Section 7 consultation process (for actions by federal agencies) or the Section 10 permit process (for actions by non-federal agencies). Federal agency actions include activities located on federal land or that are conducted by a federal agency, funded by a federal agency, or authorized by a federal agency (including issuance of federal permits and licenses).

Under Section 7 of the ESA, the federal agency conducting, funding, or permitting an action (the federal lead agency) must consult the USFWS and/or NMFS, as appropriate, to ensure that the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. In response, the USFWS issues a biological opinion determining whether (1) the proposed action may either jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding), or (2) will not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

Critical Habitat

Under the ESA, the Secretary of the Interior (or the Secretary of Commerce, as appropriate) formally designates critical habitat for certain federally listed species and publishes these designations in the Federal Register. Critical habitat is not automatically designated for all federally listed species; so many listed species have no formally designated critical habitat.

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[3] The federal ESA defines the term "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Critical habitat is defined as the specific areas that are essential to the conservation of a federally listed species, and that may require special management consideration or protection. Critical habitat is determined using the best available scientific information about the physical and biological needs of the species. These needs, or primary constituent elements, include: space for individual and population growth and for normal behavior; food, water, light, air, minerals, or other nutritional or physiological needs; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitat that is protected from disturbance or is representative of the historical geographic and ecological distribution of a species. There is no federally designated critical habitat on the campus site.

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code, Section 2070). The CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, the CDFW maintains lists of "species of special concern," which serve as watch lists.

The CESA prohibits the take of plant and animal species designated by the Fish and Game Commission as either threatened or endangered in the State of California. "Take" in the context of the CESA means to hunt, pursue, kill, or capture a listed species, as well as any other actions that may result in adverse impacts when attempting to take individuals of a listed species. The take prohibitions also apply to candidates for listing under the CESA. However, Section 2081 of the CESA allows the CDFW to authorize exceptions to the State's take prohibition for educational, scientific, or management purposes.

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species could be present on the project area and determine whether the proposed project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that could affect a candidate species.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed the CDFW to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The CESA expanded on the original NPPA and enhanced legal protection for plants. The CESA established threatened and endangered species categories and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, three listing categories for plants are employed in California: rare, threatened, and endangered.

Special-Status Natural Communities

Special-status natural communities are identified as such by the CDFW's Natural Heritage Division and include those that are naturally rare and those whose extent has been greatly diminished through changes in land use. The CNDDB tracks 135 such natural communities in the same way that it tracks occurrences of special-status species: information is maintained on each site in terms of its location, extent, habitat quality, level of disturbance, and current protection measures. The CDFW is mandated to seek the long-term perpetuation of the areas in which these communities occur. While there is no statewide law that requires protection of all special-status natural communities, CEQA requires consideration of the potential impacts of a project on biological resources of statewide or regional significance, including special-status species, sensitive natural communities, including wetlands, and wildlife corridors and nursery sites.

Federal Migratory Bird Treaty Act

The federal MBTA (United States Code, Title 16, Section 703, Supplement I, 1989) prohibits taking, killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA protects active nests of all species of birds that are included in the "List of Migratory Birds" published in the Federal Register in 1995.

California Fish and Game Code

Under Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto. Section 3503.5 of the code prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs. Code Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) allow the designation of a species as fully protected. This is a greater level of protection than is afforded by CESA. Except for take related to scientific research, all take of fully protected species is prohibited**.**

Wetlands and Other Waters of the United States

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. The federal government defines and regulates wetlands and other waters in Section 404 of the Clean Water Act as "areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b] and 40 CFR 230.3).

Under normal circumstances, the federal definition of wetlands requires the presence of three identification parameters: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other waters of the United States. Other waters of the U.S. include unvegetated waters of streams, lakes and ponds.

The Porter-Cologne Water Quality Control Act Section 13260 of the California Water Code requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." Under the Porter-Cologne Water Quality Control Act definition, the term "waters of the state" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." Although all waters of the United States that are within the borders of California are also waters of the state, the converse is not true—in California, waters of the United States represent a subset of waters of the state. Therefore, the State of California through each of nine Regional Water Quality Control Boards retains authority to regulate discharges of waste into any waters of the State, regardless of whether the U.S. Army Corps of Engineers has concurrent jurisdiction under Clean Water Act Section 404.

University of California

UCSF 2014 LRDP

The 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP objective for the Parnassus Heights campus site relate to biological resources:

Campus Site-Specific Objectives

1. **Parnassus Heights**
    - F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Land Use

LU9. Preserve the Mount Sutro Open Space Reserve as permanent open space.

UCSF Mount Sutro Open Space Reserve Vegetation Management Plan

In 2015, UCSF began a process to develop a management plan to ensure the long-term health and sustainability of the Reserve. The UCSF Mount Sutro Open Space Reserve Vegetation Management Plan was completed in March 2018 and approved by the UCSF Chancellor in April 2018.

The purpose of the Vegetation Management Plan is to provide a management framework for protecting, enhancing, and restoring vegetation in the Reserve. To achieve a healthy and stable ecosystem, the Vegetation Management Plan outlines strategies for increasing the biodiversity of vegetation, conserving existing native vegetation, improving the regeneration and recruitment of tall tree species, managing insect and disease pressure on blue gum eucalyptus, and improving structural diversity. The Vegetation Management Plan continues the University's programs of tree risk assessment and hazard tree removal, creation and management of defensible space, maintaining trail access, and conservation and stewardship of native plants.

The Vegetation Management Plan identifies three phases of forest treatment. During the first few years, forest treatments will focus on the areas of the Reserve in greatest need of treatment, including 1) removing dead, dying, unhealthy and structurally unsound trees, 2) controlling low-growing vines and shrubs that would compete with desired vegetation, 3) preventing sprouts from decayed stumps, and 4) planting new trees. In the second phase, the density of certain areas in the forest will be reduced in order to meet the desired number of trees per acre by clearing dead, dying, unhealthy and structurally unsound trees; and other forest areas would be replanted. The third phase includes extending the treatment to remaining areas of the forest, along with monitoring of the status of vegetation and wildlife in the Reserve to evaluate the results of the treatments (UCSF, 2018a).

City of San Francisco

UCSF is not subject to local land use regulation whenever using land under its control in furtherance of its educational mission. However, it is UCSF policy to be generally consistent with applicable local plans, policies and regulations to the extent feasible. City plans and regulations that are relevant to the biological resources impacts analysis are summarized below.

San Francisco Public Works Code

The San Francisco's Urban Forestry Ordinance (Article 16 of the Public Works Code) protects San Francisco's street trees, significant trees, and landmark trees regardless of species. The ordinance protects the following three categories of trees, which are defined as follows:

> A **street tree** is "any tree growing within the public right-of-way, including unimproved public streets and sidewalks, and any tree growing on land under the jurisdiction of the Department [of Public Works]" as defined in Section 802 of the ordinance. Section 806b requires entities (other than the Department of Public Works) to obtain a permit from the department prior to removing any street trees.
>
> A **significant tree** is defined in Section 810A of the ordinance as any tree: (1) located on property under the jurisdiction of the Department of Public Works or on privately owned property with any portion of its trunk within 10 feet of the public right-of-way, and (2) that satisfies at least one of the following criteria: (a) a diameter at breast height in excess of 12 inches, (b) a height in excess of 20 feet, or (c) a canopy in excess of 15 feet. Any entity other than the Department of Public Works must obtain a permit to remove significant trees according to the process described in Section 806b.
>
> A **landmark tree** is any tree that: (1) has been nominated as such by a member of the public, a landowner, the San Francisco Planning Commission, the Board of Supervisors, or the Historic Preservation Commission, (2) the Urban Forestry Council (within the San Francisco Department of the Environment) has subsequently recommended as a landmark tree, and (3) is designated a landmark tree by ordinance approved by the Board of Supervisors. According to Section 810 of the ordinance, nominated trees undergoing review are protected according to the same standards as designated landmark trees until the review process is completed.

Permits are required for planting or removing street trees and significant trees, and protection measures are required for these trees if construction work would occur within the trees' dripline. Landmark trees are protected from alteration or removal.

Standards for Bird-Safe Buildings

The San Francisco Planning Department adopted *Standards for Bird-Safe Buildings* in 2011, adding Planning Code Section 139 (San Francisco Planning Department, 2011). These standards guide the use and types of glass and façade treatments, wind generators and grates, and lighting treatments. The standards impose requirements for bird-safe glazing and lighting in structures or at sites that represent a hazard to birds and provide information on educational and voluntary programs related to bird hazards. The standards define two types of bird hazards. "Location-related hazards" are buildings located inside of, or within a clear flight path of less than 300 feet from, an Urban Bird Refuge.[4] Such buildings require treatment when new buildings are constructed; additions are made to existing buildings; or existing buildings replace 50 percent or more of the glazing within the "bird collision zone."[5] The standards require implementation of the following treatments for façades facing, or located within, an Urban Bird Refuge:

- No more than 10 percent untreated glazing is allowed on building façades within the bird collision zone.
- Lighting must be shielded, and no uplighting is permitted. No event searchlights are permitted.
- Sites are not permitted to use horizontal access windmills or vertical access wind generators that do not appear solid.

"Feature-related hazards" include building- or structure-related features that are considered potential "bird traps" regardless of location (e.g., glass courtyards, transparent building corners, or clear glass walls on rooftops or balconies). Structures that include these elements must treat 100 percent of these elements in the building with bird-safe glazing.

4.3.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

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[4] An Urban Bird Refuge is defined in the Standards for Bird-Safe Buildings as: any area of open space two acres or larger that is dominated by vegetation, including vegetated landscaping, forest, meadows, grassland, water features, or wetlands; open water; and some green rooftops.

[5] The "bird collision zone" is that portion of the building that begins at grade and extends upward for 60 feet.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Conflict with any local policies or ordinances protecting biological resources?

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

g) Exceed the LRDP EIR standard of significance by damaging or removing heritage or landmark trees or native oak trees of a diameter specified in a local ordinance?

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topic(s) for the reasons described:

- ***Adversely affect any riparian habitat or other sensitive natural community, or State or federally protected wetlands.*** As noted in the Initial Study, no sensitive riparian habitat, other natural communities, or wetlands or waters of the U.S., are present on or adjacent to those portions of the campus site where new buildings and other improvements would be constructed. There would be no impact.
- ***Conflict with adopted conservation plan.*** No habitat conservation plans or natural community conservation plans cover the campus site. There would be no impact.

Approach to Analysis

Impacts on biological resources are evaluated based on the likelihood that special-status plant and wildlife species, sensitive habitats, wildlife corridors, and protected trees are present within the campus site (as described in Section 4.3.1, *Environmental Setting*), and the likely effects that CPHP activities including construction, operation, and maintenance might have on these resources. Special-status resources that have no or low potential to occur on the campus site (as presented in Table BIO-1 in Appendix BIO) are not considered in the impact analysis.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact BIO-1: Implementation of the CPHP would not have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Less than Significant with Mitigation)

CPHP

A list of the special-status plant and wildlife species that have the potential to occur within the San Francisco North and seven surrounding quadrangles, was developed from the California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS) Electronic Inventory, the U.S Fish and Wildlife Service (USFWS) and pertinent biological literature (see Table BIO-1 in Appendix BIO). Most of the species identified from the region are associated with specific habitat types, such as dunes, valley foothill grasslands, chaparral, coastal prairie, coastal bluff scrub, marshes and swamps, which are not present on the campus site. Those species that could occur and could be affected are discussed below.

Special-Status Plant Species. Most special-status plant species have a low potential to occur due to the developed nature of the portion of the campus site where the great majority of new building development under the CPHP is planned, and which have mainly ornamental vegetation. As discussed in Chapter 3, *Project Description*, there is also the potential for certain new development under the CPHP, including the proposed New Hospital and associated widening of Medical Center Way adjacent to the New Hospital, to result in the need to modify the Reserve boundary, which may result in loss of vegetation in those areas. UCSF would replace any Reserve area that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to or greater than that area lost. The potential for rare plant species to be impacted on the campus site, including in the Reserve, is low because of the widespread alteration of vegetation communities that has occurred over time on the campus site. Communities that would support rare plants, such as coastal prairie, valley and foothill grasslands, coastal dunes, and coastal scrub, are no longer present on the campus site. However, coastal triquetrella, a special-status moss, may occur in open gravel areas along roadsides and hillsides, such as in the Aldea Housing area and in areas adjacent to Surge and Woods buildings. Damage or removal of this species due to construction in these areas would represent a potentially significant impact. To address this impact, **CPHP Mitigation Measure BIO-1a**, **Botanical Surveys**, which is set forth below, would require surveys for coastal triquetrella and avoidance of any identified plants. Implementation of this measure would reduce impacts on this species to a less-than-significant level.

Special-Status Wildlife Species. As discussed in Section 4.3.1 above, most special-status wildlife species known to occur in the San Francisco region are not likely to occur on the campus site because the campus core is highly developed and lacks habitat for most species. Even though the Reserve is a more natural area, it also lacks the habitats necessary to support many of the special-status wildlife species known from the San Francisco region. As noted above, the special-status wildlife species with a moderate potential to occur on the campus site include monarch butterfly, western bumble bee, peregrine falcon and other nesting birds, and hoary bat, western red bat and other roosting bats. The potential for campus development under the proposed CPHP to affect these species is analyzed below.

Mature stands of eucalyptus within the Reserve and in the vicinity of new construction provide suitable roosting conditions for wintering monarch butterflies. While there are no records of overwintering monarchs within the Reserve, the species is known to overwinter in other areas nearby. If monarchs were overwintering in the Reserve, they could be disturbed by demolition and construction activity adjacent to eucalyptus trees. Disturbing active monarch roosts during the wintering season (October 1 – February 28) would be considered a significant impact. Implementation of **CPHP Mitigation Measure BIO-1b**, **Protection of Monarch Butterflies**, which is set forth below, would require a preconstruction survey for the presence of overwintering monarch butterfly aggregations and establishment of buffers if aggregations are observed. Implementation of this measure would reduce this impact to a less-than-significant level.

Western bumble bee is moderately likely to forage within the Reserve or elsewhere on the campus site where flowering plants are present. However, this species would not be likely to burrow in an active construction area or busy campus pathway. Potential disturbance of foraging bees during construction under the CPHP would be temporary and minor. Thus, Plan activities would have a less-than-significant impact on western bumble bee, and no mitigation is required.

Peregrine falcon may nest on tall buildings on the campus site, and other raptors may nest in tall trees in the Reserve, as well as in the redwood grove near the Dental Clinics and other developed areas of the campus site. Smaller birds may nest in trees or shrubs on the campus site, though they are unlikely to nest in busy areas with frequent human and vehicular traffic. Plan activities such as building demolition, tree and shrub removal, grading, and new building construction could directly impact nesting birds, and elevated sound levels from heavy construction equipment could cause adult birds to abandon nests. Project construction activities could result in potentially significant impacts to nesting birds, including special-status birds. **CPHP Mitigation Measure BIO-1c, Protection of Nesting Birds,** which is set forth below**,** would require preconstruction nesting bird surveys and avoidance of active nests. Implementation of this measure would reduce impacts on migratory bird species to a less-than-significant level.

Western red bat, hoary bat and other bat species may potentially occur in forest edge habitat of the Reserve or the redwood grove by the Dentistry Clinics. Suitable roosting habitat for these bats includes tree foliage, underneath the exfoliating bark of trees, and in tree cavities. Other bat species may roost in abandoned or disused buildings on campus. Plan activities such as building demolition, tree and shrub removal, grading, and new building construction could directly impact roosting bats, and elevated sound levels from heavy construction equipment could cause adult bats to abandon maternity roosts. Project construction activities could result in potentially significant impacts to roosting bats, including special-status bats. Implementation of **CPHP Mitigation Measure BIO-1d**, **Protection of Roosting Bats**, which is set forth below, would require pre-construction and predemolition roosting bat surveys, followed by bat-safe removal if suitable bat habitat is identified in a tree or structure to be removed. Implementation of this measure would reduce impacts on bat species to a less-than-significant level.

In addition to **CPHP Mitigation Measures BIO-1a** through **-1d**, the University would also implement **CPHP Mitigation Measure-1e**, **Worker Education**, which is set forth below, a construction worker education program that would ensure that all special-status species near the construction sites are protected from inadvertent impacts.

CPHP Mitigation Measure BIO-1a. Botanical Surveys

- Within suitable habitat for special-status plant species (open gravel areas along roadsides and hillsides for coastal triquetrella), a qualified biologist approved by CDFW shall conduct a focused survey for all species with potential to be present prior to ground disturbance. If no special-status plants are observed, no further action is required.

- If special-status plant species, including coastal triquetrella are observed, the plants will be avoided with a suitable buffer, determined in coordination with CDFW The buffer zone shall be clearly demarcated using exclusion fencing. If establishing an avoidance buffer is not feasible, individual plants shall be transplanted to an area with suitable physical and biological conditions outside of the work area and monitored and adaptively managed for five years.

CPHP Mitigation Measure BIO-1b. Protection of Monarch Butterflies

- Prior to demolition activities, a qualified biologist familiar with monarch butterfly behavior and habitat shall conduct a preconstruction survey for the presence of overwintering monarch butterfly aggregations. The survey shall be conducted in December or January during the period when overwintering aggregations appear. Should an overwintering aggregation be identified in trees surrounding proposed work sites within or adjacent to the Reserve, a 200-foot buffer shall be established around the occupied trees until the aggregation has dispersed, and construction within the buffer zone will be avoided for the duration of the overwintering period.

CPHP Mitigation Measure BIO-1c. Protection of Nesting Birds

- Tree and vegetation removal or pruning associated with project construction and commencement of outdoor project construction activities shall be avoided from February 1 through August 31, the primary local bird nesting season, to the extent feasible. If tree and vegetation removal or pruning associated with project construction is proposed during the nesting period, within seven days prior to the proposed start of construction activities a qualified biologist shall conduct a nesting bird survey of all potential habitat at the construction site and within 250 feet of the perimeter of the construction site.

- If any active nests are detected during the pre-construction survey, the qualified biologist shall recommend a work-exclusion buffer zone that shall be designated around the active nest to allow for both the successful fledging of the birds and initiation of work on some portions of the project site. A qualified biologist shall monitor any occupied nest located within a protective buffer zone in order to determine if the designated buffer zone is effective and when the buffer zone is no longer needed. If the buffer zone is determined to be ineffective, its size shall be increased until it is effective, or work within one-quarter mile of the nest shall cease until the young have fledged and are independent of the nest.

CPHP Mitigation Measure BIO-1d. Protection of Roosting Bats

- Prior to project construction, a qualified bat biologist shall conduct a pre-construction survey for roosting bats in trees to be removed or pruned and structures to be demolished within the work area and within a 50-foot radius of the work area. If no roosting bats are found, no further action is required.
- If a non-maternal roost of bats is found in a tree or structure to be removed or demolished as part of project construction, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity. Removal or demolition should occur no sooner than at least two nights after the initial minor site modification (to alter airflow). This action allows bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of disturbance. Departure of the bats from the construction area shall be confirmed with a follow-up survey by a qualified bat biologist prior to start of construction.
- If active maternity roosts are found in trees or structures that will be removed or demolished as part of project construction, tree removal or demolition of that tree or structure shall commence and be completed before maternity roosting colonies form (generally before March 1), or shall not commence until after young are flying (generally after July 31). Active maternity roosts shall not be disturbed between March 1 and July 31.

CPHP Mitigation Measure BIO-1e. Worker Education

- A qualified biologist shall provide training to all construction workers prior to starting work on plan components. The training shall cover special-status species with potential to be found onsite, avoidance measures to be undertaken if a species is found, and best management practices for site housekeeping.

Significance after Mitigation: Less than Significant.

Irving Street Arrival

The proposed Irving Street Arrival would include modification of the existing Medical Building 1, and involve demolition and construction of an existing developed area. Minor loss of ornamental vegetation could occur during demolition, but no special-status species, nesting birds, or other biological resources would be expected at these locations. Thus, no impact to special-status species would occur.

Mitigation: None required.

Research and Academic Building

Construction of the Research and Academic Building (RAB) would entail demolition of UC Hall and the School of Nursing Building and replacement with the proposed RAB, and may also include construction of an adjoining service/utility corridor and promenade. The work at this project site would primarily involve demolition and construction in already disturbed areas. However, some loss of ornamental trees and vegetation could occur during construction. Special-status plants would not be expected in this area; however, this disturbance has the potential to impact special-status wildlife, including migratory birds and roosting bats. As discussed above for the CPHP, these impacts would be mitigated by implementation of CPHP Mitigation Measures BIO-1b through 1d. Thus, impacts would be less than significant.

> **Mitigation:** Implement CPHP Mitigation Measures BIO-1b, BIO-1c, BIO-1d, and BIO-1e.
>
> **Significance after Mitigation:** Less than Significant.

Initial Aldea Housing Densification

The initial densification of Aldea Housing would include demolition of three existing student housing buildings and construction of new housing buildings in approximately the same footprint. While the Reserve itself would not be impacted by construction, ground disturbance would occur and some trees and other vegetation presently growing within the housing complex may be removed. This disturbance has the potential to impact special-status plants (coastal trinquetrella) as well as migratory birds and roosting bats. As discussed above for the CPHP, these impacts would be fully mitigated by implementation of CPHP Mitigation Measures BIO-1a through 1e. Thus, impacts would be less than significant.

> **Mitigation:** Implement CPHP Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-1d, and BIO-1e.
>
> **Significance after Mitigation:** Less than Significant.

Initial Phase Improvements

The Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. While most of these improvements would be located in the developed areas of the campus core, as part of the utility improvements in the Initial Phase, some tree removal and grading alteration within the hillside adjacent to Medical Center Way would occur to accommodate proposed fuel tanks. This disturbance has the potential to impact special-status plants (coastal trinquetrella) as well as migratory birds and roosting bats. As discussed above for the CPHP, these impacts would be fully mitigated by implementation of CPHP Mitigation Measures BIO-1a through 1e.

> **Mitigation:** Implement CPHP Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-1d, and BIO-1e.
>
> **Significance after Mitigation:** Less than Significant.

Impact BIO-2: Implementation of the CPHP would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less Than Significant with Mitigation)

CPHP

The Parnassus Heights campus site is located in the middle of San Francisco; although the Reserve is an undeveloped area, it does not provide contiguous habitat for any terrestrial species because of the presence of developed and disturbed areas on all sides. Thus, no established corridors are present on the campus site for terrestrial wildlife species. Migratory birds utilizing the Pacific Flyway do, however, use the natural habitat of the Reserve as an important stopover, along with other parklands in San Francisco, including Golden Gate Park and Buena Vista Park, which serve a similar function.

Planned development under the CPHP would be focused primarily in developed areas of the campus core and the Aldea Housing complex. Thus, these activities would have overall minimal impact on the Reserve's function as a migratory stopover. However, the construction of taller development on the campus site under the CPHP, most notably the New Hospital which would be developed adjacent to, and could require modification of, the Reserve boundary, would increase the likelihood of birds striking windows of that building during flight. Window strikes cause injury or mortality to passing migratory and resident birds. In addition, potential construction night lighting, and building night lighting associated with operation of the new development under the CPHP can attract migratory birds and increase the likelihood of strike injuries or mortality.

Bird flights close to man-made structures also risk collisions with such structures. Direct effects on resident or migratory birds moving through an area could include death or injury if birds collide with lighted structures or with glass during the daytime. Indirect effects for migratory birds include delayed arrival at breeding or wintering grounds, and reduced energy stores necessary for migration, winter survival, or subsequent reproduction (Gauthreaux and Belser, 2006). Approximately 100 million to 1 billion birds die in North America as a result of collisions each year (Seewagen, 2017). Daytime collisions occur most often when birds fail to recognize window glass because it reflects clouds and sky.

In 2011 the San Francisco Planning Department adopted *Standards for Bird-Safe Buildings* (see Section 4.3.2 above). While UCSF is not subject to local land use regulations whenever using property under its control in furtherance of its educational mission, to address the potentially significant impact of bird strikes during construction and operation, UCSF will adopt mitigation that is generally consistent with the City's *Standards for Bird-Safe Buildings* for new construction proposed under the CPHP. UCSF will implement **Mitigation Measures BIO-2a, Prevention of Harm to Migrating Birds during Construction,** and **BIO-2b, Bird-Safe Building Treatments**, which are set forth below. Implementation of these measures would reduce the potential adverse effect on resident and migrating birds to a less than significant level by reducing injuries associated with night lighting during construction and operation of the new facilities, and requiring design features be incorporated into new structures that would make buildings more visible to birds.

Mitigation Measure BIO-2a: Prevention of Harm to Migrating Birds During Construction

Construction areas requiring lights shall implement the following measures to the extent feasible:

- Construction-related lighting shall be fully shielded and focused down to ensure no significant illumination passes beyond the immediate work area. Lighting shall be positioned around the perimeter of the work area positioned toward activity and not surrounding habitat of the Reserve.
- Yellow or orange light shall be used where possible.
- Construction personnel shall reduce the amount of lighting to the minimum necessary to safely accomplish the work.
- Night construction near suitable habitat for nesting and migratory birds and bats (i.e. the Reserve forest and understory vegetation) shall be avoided during nesting season (February 15 – August 15). If night construction near these areas cannot be avoided, light shall not be allowed to shine directly into suitable habitat.

Mitigation Measure BIO-2b: Bird-Safe Building Treatments

Building designs shall:

- Avoid installation of lighting in areas where not required for public safety.
- Examine and adopt alternatives to bright, all-night, floor-wide lighting when interior lights would be visible from the exterior or when exterior lights must be left on at night, including:
  - Installing motion-sensitive lighting
  - Installing task lighting
  - Installing programmable timers
  - Installing fixtures that use lower-wattage, sodium, and yellow-red spectrum lighting (if compatible with personnel safety requirements).
- Where exterior lights are to be left on at night, install fully shielded lights to contain and direct light away from the sky.
- Employ glazing options such as use of either fritted glass, Dichroic glass, etched glass, translucent glass, or glass that reflects ultraviolet light in appropriate portions of the building façade.
- Minimize light and glare resulting from new buildings through the orientation of the building, use of landscaping materials and choice of primary façade materials. Design standards and guidelines to minimize light and glare shall be adopted for the new buildings, including: reflective metal walls and mirrored glass walls shall not be used as primary building materials for facades.

Significance after Mitigation: Less than Significant.

Irving Street Arrival

The Irving Street Arrival would construct new facilities largely within the footprint of an existing building. Although, the project would add two stories, the project site is in a developed area and does not provide stopover habitat for migratory birds. Thus, construction and operation of this facility is not likely to increase injury or mortality to migratory birds. No impact would occur.

Mitigation: None required.

Research and Academic Building

The proposed RAB project would demolish the existing UC Hall (and nearby School of Nursing), and construct a new 8-story building. While the proposed RAB would not be substantially taller than UC Hall, its construction would involve night lighting in the vicinity of the Reserve and may impact migratory birds on the Pacific Flyway. In addition, the new RAB's design could pose an increased hazard of bird strikes from reflective glass or operational lighting. As discussed above for the CPHP, these impacts would be mitigated by implementation of CPHP Mitigation Measures BIO-2a and 2b. Thus, with mitigation the impact would be less than significant.

Mitigation: Implement CPHP Mitigation Measures BIO-2a and 2b.

Significance after Mitigation: Less than Significant.

Initial Aldea Housing Densification

The initial densification of Aldea Housing would remove three 3-story buildings adjacent to the Reserve and replace them three 8-story buildings and one 5-story building. During construction, night lighting could impact passing migratory birds, and building design could pose a hazard from operational lighting, and an increased risk of window strikes from the taller structures. As discussed above for the CPHP, these impacts would be fully mitigated by implementation of CPHP Mitigation Measures BIO-2a and 2b. Thus, with mitigation the impact would be less than significant.

Mitigation: Implement CPHP Mitigation Measures BIO-2a and 2b.

Significance after Mitigation: Less than Significant.

Initial Phase Improvements

Initial Phase building renovations would include exterior building renovations, and may involve night lighting during construction. These activities could pose an increased hazard of bird strikes. As discussed above for the CPHP, these impacts would be mitigated by implementation of CPHP Mitigation Measures BIO-2a and 2b. Thus, with mitigation the impact would be less than significant.

Mitigation: Implement CPHP Mitigation Measures BIO-2a and 2b.

Significance after Mitigation: Less than Significant.

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Impact BIO-3: Implementation of the CPHP would not conflict with any applicable local policies or ordinances protecting biological resources, including exceeding the LRDP EIR standard of significance by damaging or removing heritage or landmark trees or native oak trees of a diameter specified in a local ordinance. (Less than Significant)

CPHP

As discussed in Chapter 3, *Project Description*, certain tree removal would be required under the CPHP as a result of clearing, excavation and regrading activities. This includes, but is not limited to, areas within the Reserve (e.g., on the hillside east of the New Hospital, and locations adjacent to Medical Center Way), elsewhere within the campus site (e.g., redwood grove along Parnassus Avenue west of UC Hall, and miscellaneous areas of ornamental landscaping), and off-site (e.g., street trees along Parnassus Avenue and/or Irving Street).

Pursuant to the University of California's constitutional autonomy, development and uses on property under control of the University that are in furtherance of the University's educational purposes are not subject to local land use regulation, including City of San Francisco General Plan policies regarding protection of biological resources. Although UCSF is not subject to City policies and regulations, UCSF strives to be consistent with City standards, where feasible.

The San Francisco Urban Forestry Ordinance (Article 16 of the San Francisco Public Works Code) was enacted to ensure the protection of trees on private land within and adjacent to public areas. The City of San Francisco currently considers street trees, significant trees and landmark trees as protected. Significant trees are trees within 10 feet of the public right-of-way <u>and</u> are either 20 feet or greater in height, 15 feet or greater in canopy width, or 12 inches or greater in trunk diameter at 4.5 feet above grade. Landmark trees are trees that have received special designation by the San Francisco Board of Supervisors due to species rareness, size, age, structure, ecological contribution, or historical and cultural importance. Removal of such trees requires a permit and payment of costs associated with a public hearing and replacement of the tree. Pursuant to the University of California's constitutional autonomy, on university-controlled property used in furtherance of the University's educational mission, UCSF is not subject to local policies protecting biological resources. However, UCSF will avoid removal of trees that would be considered significant or protected to the maximum extent feasible. Any trees within the public right-of-way that may be removed during the course of off-site construction under the CPHP would conform to the City ordinance governing tree protection. Thus, this impact would be less than significant.

Mitigation: None required.

Irving Street Arrival

For the reasons described above for the CPHP, the potential impact of the proposed Irving Street Arrival project on biological resources, including trees, would be less than significant.

Mitigation: None required.

Research and Academic Building

For the reasons described above for the CPHP, the potential impact of the proposed RAB project on biological resources, including trees, would be less than significant.

Mitigation: None required.

Initial Aldea Housing Densification

For the reasons described above for the CPHP, the potential impact of the proposed initial Aldea Housing Densification project on biological resources, including trees, would be less than significant.

Mitigation: None required.

Initial Phase Improvements

For the reasons described above for the CPHP, the potential impact of the proposed Initial Phase improvements on biological resources, including trees, would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact C-BIO-1: Implementation of the CPHP would not result in cumulatively considerable impacts on biological resources, in combination with past, present and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site. (Less than Significant with Mitigation)

The Parnassus Heights campus site is located in an urban setting surrounded by a mix of institutional, residential, neighborhood commercial and open space uses. As such, cumulative building projects are limited to the densification or rebuilding of existing structures. Cumulative projects occurring outside the campus site are typically in developed areas that lack sensitive biological resources, and therefore, do not have considerable cumulative effects on biological resources. With regard to projects on the campus site, the primary cumulative projects considered in this analysis include a number of demolition projects (e.g., Surge, LPPI, Proctor buildings, etc.) and utility improvements, previously authorized at the Parnassus Heights campus site under the 2014 LRDP, which have not yet been implemented. In addition, the Mount Sutro Open Space Vegetation Management Plan (UCSF, 2018a) is currently being implemented, involving phased removal of trees and understory and re-planting within the Reserve.

Implementation of the Mount Sutro Open Space Vegetation Management Plan will impact special-status species, including migratory birds and bats, within the Reserve by disturbance, as well as direct removal of habitat. However, these impacts were mitigated to a less-than-significant level with the implementation of mitigation measures that were adopted at the time of project approval. Furthermore, the Vegetation Management Plan's phased implementation was designed to minimize the extent of loss of habitat for species in the Reserve. With respect to the demolition of Surge, LPPI, Proctor and other buildings previously authorized under the 2014 LRDP, biological impacts associated with those projects would be mitigated to a less than significant level with the implementation of mitigation measures included in the 2014 LRDP EIR. As discussed above, the CPHP would result in minimal direct impacts on sensitive biological resources within the Reserve, and would mitigate for all indirect impacts to special-status species, both inside and outside of the Reserve, with **CPHP Mitigation Measures BIO-1a** through **1e**, and **BIO-2a** and **2b**. Therefore, with mitigation, campus site development under the proposed CPHP would not result in a cumulatively considerable contribution to impacts on biological resources. Thus, the project's cumulative impacts on biological resources would be less than significant.

> **Mitigation:** Implement CPHP Mitigation Measures BIO-1a through 1e, and BIO-2a and 2b.
>
> **Significance after Mitigation:** Less than Significant.

4.3.4 References

California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB), 2019. Special status species occurrences for the San Francisco North and seven surrounding U.S. Geographical Survey (USGS) 7.5-minute topographic quadrangles, Commercial Version. September 6.

California Native Plant Society (CNPS), 2019. Inventory of Rare and Endangered Plants for the San Francisco North and seven surrounding USGS 7.5-minute topographic quadrangles. Available online at http://www.rareplants.cnps.org/.

Gauthreaux, S.A., Belser, C.G., 2006. *Effects of Artificial Night Lighting on Migrating Birds*, In: Rich, C. and Longcore, T., Ecological Consequences of Night Lighting, Island Press, Covelo, CA, pp. 67–93.

Krauel, J.K., 2009. *Foraging Ecology of Bats in San Francisco*, M.S. Thesis, San Francisco State University. Available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E, 2009. Cited in UCSF, 2014.

Mayer, K.E. and W.F. Laundenslayer, eds., 1988. *A Guide to Wildlife Habitats of California*, California Department of Fish and Wildlife, Sacramento, CA.

New York Audubon Society, 2007. *Bird Safe Building Guidelines,* http://www.nycaudubon.org/pdf/BirdSafeBuildingGuidelines.pdf.

San Francisco Planning Department, 2011. Standards for Bird-safe Buildings. Adopted July 14, 2011. Available online at https://sfplanning.org/standards-bird-safe-buildings.

Seewagen, C. L. and C. Sheppard, 2017. Bird Collisions with Windows: An Annotated Bibliography. American Bird Conservancy, Washington, DC.

University of California, San Francisco (UCSF), 2014. *UCSF 2014 Long Range Development Plan Final EIR*. November.

UCSF, 2018a. Mount Sutro Open Space Reserve Vegetation Management Plan. March.

UCSF, 2018b. Mount Sutro Open Space Reserve Vegetation Management Plan Final Environmental Impact Report. March.

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4.4 Cultural Resources and Tribal Cultural Resources

This section assesses the potential for construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts on cultural resources (including architectural resources, prehistoric and historic-era archaeological resources, and human remains) and tribal cultural resources. The section includes a description of the existing environmental setting as it relates to cultural and tribal cultural resources, and provides a regulatory framework that discusses applicable federal, State, and local regulations, identifies criteria used to determine impact significance, discusses potential impacts, and identifies feasible mitigation measures, as necessary, to reduce potential significant impacts.

4.4.1 Definitions

Architectural resources include buildings, structures, objects, and historic districts. Residences, cabins, barns, industrial buildings, and bridges are examples of architectural resources. CEQA Guidelines define an architectural historical resource as: (1) a resource in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Archaeological resources consist of prehistoric and historic-era archaeological resources. Prehistoric archaeological resources consist of village sites, temporary camps, lithic scatters, roasting pits/hearths, milling features, petroglyphs, rock features, and burials. Associated artifacts include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs). Historic-era archaeological resources include townsites, homesteads, agricultural or ranching features, mining-related features, refuse concentrations, and features or artifacts associated with early military and industrial land uses. Associated artifacts include stone, concrete, or adobe footings and walls; artifact-filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. If a lead agency determines that an archaeological site is an historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the criteria of PRC Section 21083.2 regarding unique archaeological resources.

Tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources (PRC Section 21074[a][1]).

4.4.2 Environmental Setting

Prehistoric and Ethnohistoric Context

Categorizing the prehistoric period into cultural stages allows researchers to describe a range of archaeological resources with similar cultural patterns and components during a given time frame, creating a regional chronology. Milliken et al. (2007) provide a framework for the interpretation of the San Francisco Bay Area. The authors divided human history in California into three periods: the *Early Period*, the *Middle Period*, and the *Late Period*. In many parts of California four periods are defined; the fourth being the *Paleoindian Period* (11500–8000 B.C.), characterized by big-game hunters occupying broad geographic areas. Evidence of human habitation during the Paleoindian Period has not yet been discovered in the San Francisco Bay Area. Economic patterns, stylistic aspects, and regional phases further subdivide cultural periods into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

Based on a compilation of ethnographic, historic, and archaeological data, Milliken (1995) describes a group known as the Ohlone, who once occupied the general vicinity of the Plan area. Levy (1978) describes the language group spoken by the Ohlone, known as “Costanoan.” The term Costanoan is originally derived from a Spanish word designating the coastal peoples of Central California. Today Costanoan is used as a linguistic term that refers to a larger language family spoken by distinct sociopolitical groups that spoke at least eight languages (as different as Spanish is from French) of the same Penutian language group. The Ohlone once occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. Milliken (1995) notes that San Francisco was within the *Yelamu* tribal territory, a group of approximately 160 individuals at the beginning of the historic era.

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species, and rabbit and other small mammals. The Ohlone acknowledged private ownership of goods, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories (Levy, 1978).

After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement (Milliken, 1995). Today, the Ohlone still have a strong presence in the San Francisco Bay Area, and are highly interested in their historic and prehistoric past. There are six culturally-affiliated tribes or individuals associated with the San Francisco area; none have been federally recognized.

No prehistoric or ethnographic archaeological resources have been recorded within the Plan area (NWIC File No. 19-0705). However, two locations within the Plan area are unofficially associated with *Ishi*, the name given to the lone survivor of the northern California tribe of Yahi Indians, who lived and worked at the Anthropology Museum on the UCSF Parnassus Heights campus site between 1911 and 1916. One location is a large rock outcropping that creates an overhang southeast of the Chancellor’s residence. The second location is a cave northwest of the Chancellor’s residence. In 1998, UCSF retained an archaeologist to conduct archaeological testing and excavation adjacent to the Chancellor's residence; no artifacts that may have been attributable to *Ishi* were identified (Holman, 1998). The cave and outcropping are contained within the Mount Sutro Open Space Reserve (Reserve) and would not be impacted by the proposed CPHP or through possible encroachment of the Reserve by the New Hospital or road improvements.

Historical Background

Spanish, Mexican, and Early American Periods

Initial European exploration of the San Francisco Peninsula began in 1769 and lasted until 1810. During this period, a number of Spanish expeditions penetrated the territory occupied by the Ohlone. Between 1769 and 1776, forays led by Portola, Ortega, Fages, Fages and Crespi, Anza (two expeditions), Rivera, and Moraga were carried out. Favorable reports led to the founding of seven missions in the region between 1770 and 1797.

In the spring of 1776, the site of San Francisco was chosen by Juan Batista Anza for the establishment of a mission and military post. Later that same year, the Mission San Francisco de Asís (also known as Mission Dolores) and Presidio de San Francisco were officially dedicated and Jose Joaquin Moraga (Anza's lieutenant) took formal possession in the name of King Carlos III.

The Spanish annexation and colonization of Alta California, as manifested in the religious-military mission system, produced profound changes in the cultures of the indigenous population. The missions resettled and concentrated the aboriginal hunter-gatherer population into agricultural communities. The concentration of population, coupled with the indigenous people's lack of immunity to European diseases, caused the tribes to be decimated by common diseases which were generally not fatal to Europeans. It has been estimated that the Ohlone population declined from 10,000 or more in 1770 to less than 2,000 in 1832.

Mexico established jurisdiction over Alta California in April of 1822. During the Mexican Period (1822–1848), control over this remote area by the central and local Mexican authorities was never strong. California became part of the United States as a consequence of the U.S. victory over Mexico in the Mexican War. The territory was formally ceded in the treaty of Guadalupe Hidalgo in 1848, and was admitted as a state in 1850.

Prior to the discovery of gold at Sutter's Mill on January 24, 1848, development in San Francisco consisted of the Spanish/Mexican facilities (i.e., the Presidio and Mission) and a small settlement known as Yerba Buena situated on the shores of the cove by the same name. The inhabitants of Yerba Buena were predominantly non-Spanish, English-speaking immigrants (e.g., U.S. or British citizens). Sometime before the Gold Rush, the inhabitants of Yerba Buena officially changed the name of their settlement to San Francisco. Following the discovery of gold, San Francisco transformed quickly from an isolated hamlet into a bustling center of commerce. After the discovery of gold, the population of San Francisco grew from 375 people in 1847 to 2,000 by February 1849, and by the end of 1849, there may have been as many as 20,000 people living in the City (CCSF, 2011).

University of California San Francisco, Parnassus Heights

UCSF is historically associated with the Toland Medical College, founded in downtown San Francisco in 1863. In 1873, the Toland Medical College was acquired by and became affiliated with the University of California. The original UCSF campus at Parnassus Heights was established through a combination of factors, including the appropriation of $250,000 by the state legislature in 1895 to construct three buildings to house the "Affiliated Colleges" of Dentistry, Medicine, and Pharmacy. Also, in 1895, Adolph Sutro, the former mayor of San Francisco, presented the University with a gift of its first 13 acres. The cornerstone for the Affiliated Colleges at the Parnassus Heights campus site was laid on March 27, 1897, and the campus opened in October 1898.

UC Hall (extant), originally known as UC Hospital when it was completed in 1917, was the first hospital building constructed on the campus site. Construction of additional medical facilities, academic buildings, and other support functions continued throughout the first half of the 20th century, occurring primarily along the south side of Parnassus Avenue and eventually extending from 3rd Avenue east to Hillway Avenue. Post-World War II growth continued to be concentrated in areas south of Parnassus Avenue, including Moffitt Hospital and the Medical Sciences Building (1955, both extant), as well as areas north of Parnassus Avenue to Irving Street.

In the period from the 1960s to 1980s, the University refurbished a number of the aging buildings including UC Hall and the Clinical Sciences Building (extant) which was originally completed in 1933. Other buildings were demolished in this period, including the old Medical School Building – completed in 1898 and located in what is now Saunders Court between the Medical Sciences Building and the School of Nursing.

New buildings constructed during this period include the University House (extant), which opened in 1965 to be used as the Chancellor's Residence, and two glass towers (extant) behind the Medical Science and Clinical Sciences buildings called Health Science East and West, which were completed in 1966. The School of Nursing building (extant) was competed in 1972, and the Ambulatory Care Center building (extant, today known as Medical Building 1 or ACC) on the opposite side of Parnassus Avenue was completed in 1973. Numerous new buildings were also added in the 1980s, including the new School of Dentistry/Dental Clinics building (1980, extant), the modernized Moffitt Hospital projects (1980, extant), the new Long Hospital (1983, extant), and the Koret Center (1986, extant).

Identified Cultural Resources

An inventory of extant buildings and cultural landscapes on the Parnassus Heights campus site is included in **Table CUL-1** in **Appendix CUL**. **Table 4.4-1**, below, summarizes those considered historical resources for the purposes of CEQA. Of the 71 individual buildings on the campus site, 25 are considered historical resources for the purposes of CEQA (this includes eight contributors to the Third Avenue Historic District). Additionally, two cultural landscapes are considered historical resources: Saunders Court and the Reserve.

TABLE 4.4-1
INVENTORY OF HISTORICAL RESOURCES ON UCSF PARNASSUS HEIGHTS CAMPUS SITE

Building Name	Year Built (Source)	Eligibility (Source)
Millberry Union (excluding garage)	1955 (Carey & Co., 2011)	NR[a] and CR[b] (Carey & Co., 2011)
UC Hall	1917 (Carey & Co., 2003)	CR (Carey & Co., 2003)
Dental Clinics	1979 (Carey & Co., 2011)	NR and CR with Criteria Consideration G (Carey & Co., 2011)
Clinical Sciences	1933 (Page & Turnbull, 2005)	CR (Page & Turnbull, 2005)
Saunders Court (cultural landscape)	1967 (Carey & Co., 2011)	Presumed eligible for NR and CR (Carey & Co., 2011)
Mount Sutro Open Space Reserve (cultural landscape)	1886 (Knapp & VerPlanck, 2013)	CR (Knapp & VerPlanck, 2013)
Health Sciences Instruction and Research (HSIR) West	1966 (Carey & Co., 2011), 1964 (UCSF, 2019)	Presumed eligible for NR and CR (Carey & Co., 2011)
HSIR East	1966 (Carey & Co., 2011), 1964 (UCSF, 2019)	Presumed eligible for NR and CR (Carey & Co., 2011)
Medical Sciences	1954 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)
Langley Porter Psychiatric Institute (LPPI)	1943 (Graves, 2019a), 1941 (UCSF, 2019)	NR and CR (Graves, 2019a)
Potential Third Avenue Historic District		NR and CR (Carey & Co., 2011)
1320 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor
1326 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor
1332 Third Avenue	1911 (Carey & Co., 2011), 1915 (UCSF, 2019)	Contributor
1338 Third Avenue	1910 (Carey & Co., 2011), 1913 (UCSF, 2019)	Contributor
1344 Third Avenue	1910 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor
1350 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor
1356 Third Avenue	1911 (Carey & Co., 2011)	Contributor
1362 Third Avenue	1909 (Carey & Co., 2011)	Contributor
1422-24 Fifth Avenue	1922 (Carey & Co., 2011), 1915 (UCSF, 2019)	NR and CR (Carey & Co., 2011)
1432-34 Fifth Avenue	1910 (Carey & Co., 2011), 1911 (UCSF, 2019)	NR and CR (Carey & Co., 2011)
1468 Fifth Avenue	1948 (Carey & Co., 2011), 1920 (UCSF, 2019)	NR and CR (Carey & Co., 2011)
Faculty Alumni House (745 Parnassus Avenue)	1915 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)
Surge	1966 (Carey & Co., 2011)	Presumed eligible for NR and CR (Carey & Co., 2011)
University House (Chancellor's residence)	1966 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)
Aldea San Miguel Housing Complex		
Aldea San Miguel 8 (105 Behr Avenue)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)
Aldea San Miguel 12 (165 Johnstone Drive)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)
Aldea San Miguel 10 (175 Johnstone Drive)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)

NOTES:

[a] National Register of Historic Places

[b] California Register of Historical Resources

4.4.3 Regulatory Framework

Federal

Historical and archaeological resources are considered through the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 306108), and its implementing regulations. Before an "undertaking" (e.g., federal funding or issuance of a federal permit) is implemented, Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the national register) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register of Historic Places (National Register). Under the preservation act, a property is considered significant if it meets the National Register listing criteria A through D, at 36 Code of Federal Regulations 60.4, as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:
>
> a) Are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> b) Are associated with the lives of persons significant in our past, or
>
> c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> d) Have yielded, or may be likely to yield, information important in prehistory or history

For a resource to be eligible for the National Register, it must also retain enough integrity to be recognizable as a historic property and to convey its significance. Resources that are less than 50 years old are generally not considered eligible for the National Register.

Federal review of the effects of undertakings on significant cultural resources is carried out under Section 106 of the NHPA and is often referred to as "Section 106 review." This process is the responsibility of the federal lead agency. Section 106 review typically involves a four-step procedure, which is described in detail in the implementing regulations of the NHPA (36 Code of Federal Regulations 800):

- Define the Area of Potential Effects in which an undertaking could directly or indirectly affect historic properties;
- Identify historic properties in consultation with the State Historic Preservation Office and interested parties;
- Assess the significance of effects of the undertaking on historic properties; and
- Consult with the State Historic Preservation Officer, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the

Advisory Council on Historic Preservation and proceed with the project according to the conditions of the agreement.

State

The State of California implements the NHPA of 1966, as amended, through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation, as an office of the California Department of Parks and Recreation, implements the policies of the preservation act on a statewide level. The Office of Historic Preservation also maintains the California Historical Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdictions.

CEQA and the California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). Certain resources are determined by the statute to be automatically included in the California Register, including those formally determined eligible for or listed in the National Register (PRC 5024.1[d][1]). These resources are termed "historical resources."

Based on Section 15064.5(a) of the CEQA Guidelines, historical resources include, but are not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant or that is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource is considered by a lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register (PRC Section 5024.1), or qualifies as a "unique historical resource" (PRC Section 21083.2).

To be eligible for the California Register, a cultural resource must meet one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

For a resource to be eligible for the California Register, it must also retain enough integrity of location, design, setting, materials, workmanship, feeling, and association to be recognizable as a historical resource and to convey its significance. Resources that are less than 45 years old are generally not considered eligible for the California Register.

Impact assessment under CEQA considers only historically significant cultural resources; that is, resources that meet CEQA criteria for eligibility to the California Register (historical resources) or qualify as unique archaeological resources, as detailed below. Impacts on resources that do not meet these criteria are not considered in impact assessment under CEQA. Similarly, for projects with federal involvement, only resources that meet the criteria of eligibility for the National Register receive further consideration in impact analysis.

CEQA considers archaeological resources as an intrinsic part of the physical environment and thus requires that, for any project, the potential of the project to adversely affect archaeological resources be analyzed (CEQA Section 21083.2). For a project that may have an adverse effect on a significant archaeological resource, CEQA requires preparation of an environmental impact report (CEQA Section 21083.2 and CEQA Guidelines Section 15065). CEQA recognizes two different categories of significant archaeological resources: "unique" archaeological resource (CEQA Section 21083.2) and an archaeological resource that qualifies as a "historical resource" under CEQA (CEQA Section 21084.1 and CEQA Guidelines Section 15064.5).

Assembly Bill 52

In September of 2014, the California Legislature passed Assembly Bill 52, which added provisions to the PRC regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, Assembly Bill 52 now requires lead agencies to analyze project impacts on "tribal cultural resources" separately from archaeological resources (PRC Sections 21074; 21083.09). The bill defines "tribal cultural resources" in a new section of the PRC Section 21074. Assembly Bill 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Sections 21080.3.1, 21080.3.2, 21082.3).

Specifically, PRC Section 21084.3 states:

a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

   1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

   2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

      (A) Protecting the cultural character and integrity of the resource.

      (B) Protecting the traditional use of the resource.

      (C) Protecting the confidentiality of the resource.

3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
4) Protecting the resource.

Finally, Assembly Bill 52 required the Office of Planning and Research to update Appendix G of the CEQA Guidelines to provide sample questions regarding impacts on tribal cultural resources (PRC Section 21083.09).

California Public Resources Code Sections 5097.98 and 5097.99

PRC Section 5097.98 (and reiterated in CEQA Guidelines Section 15064.59 [e]) identifies steps to follow in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery. PRC Section 5097.99, as amended, states that no person shall obtain or possess any Native American artifacts or human remains which are taken from a Native American grave or cairn. Any person who knowingly or willfully obtains or possesses any such artifacts or human remains is guilty of a felony which is punishable by imprisonment. Any person who removes, without authority of law, any such items with an intent to sell or dissect or with malice or wantonness is also guilty of a felony which is punishable by imprisonment.

California Health and Safety Code Section 7050.5

Section 7050.5 of the California Health and Safety Code protects human remains by prohibiting the disinterring, disturbing, or removing of human remains from any location other than a dedicated cemetery.

California Native American Historic Resource Protection Act

The California Native American Historic Resources Protection Act of 2002 imposes civil penalties, including imprisonment and fines up to $50,000 per violation, for persons who unlawfully and maliciously excavates upon, removes, destroys, injures, or defaces a Native American historic, cultural, or sacred site that is listed or may be listed in the California Register.

University of California

UCSF 2014 LRDP

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP objectives relate to cultural resources:

Campus-Wide Objectives

4. **Promote Environmental Sustainability**
   A. Optimize the use of existing facilities, sites, and campus space through repurposing, renovation, densification, and consolidation where appropriate.

Campus Site-Specific Objectives

1. **Parnassus Heights**
    F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Building and Public Realm Design

BD3. Consider adaptive reuse of building structures.

BD8. Respect historically significant resources whenever possible.

City of San Francisco

UCSF is not subject to local land use regulation whenever using land under its control in furtherance of its educational mission. However, it is UCSF policy to be generally consistent with applicable local plans, policies and regulations to the extent feasible. City plans and regulations that are relevant to the cultural resource impacts analysis are summarized below.

San Francisco City Landmarks

San Francisco City Landmarks are buildings, properties, structures, sites, districts, and objects that possess special character or special historical, architectural or aesthetic interest or value and that are an important part of the City's historical and architectural heritage. City Landmarks are important to San Francisco's history and are significant and unique examples of the past. Adopted in 1967 as Article 10 of the City Planning Code, City Landmarks are protected from inappropriate alterations and demolitions, with all significant alterations reviewed by the San Francisco Historic Preservation Commission. There are currently 287 landmark sites and 14 historic districts in San Francisco subject to Article 10, and none of these are located within the Parnassus Heights campus site.

4.4.4 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5;

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5; or

c) Disturb any human remains, including those interred outside of formal cemeteries.

d) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

  i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or

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

Approach to Analysis

Architectural Resources

Potential impacts on architectural resources are assessed by identifying any activities (either during construction or operations) that could affect resources that have been identified as historical resources for the purposes of CEQA. Once a resource has been identified as a CEQA historical resource, it then must be determined whether the project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance of an historical resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064[b][1]). A historical resource is considered materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in the California Register (CEQA Guidelines Section 15064.5[b][2][A]).

As discussed in Section 4.0, *Introduction to Environmental Analysis*, several demolition projects at the Parnassus Heights campus site were previously approved under the 2014 LRDP that have not yet been implemented, including demolition of the LPPI. However, since the LPPI was recently determined to be individually eligible for the National Register and California Register (Graves, 2019a), this EIR addresses the potential effect of demolition of the LPPI on historic resources as part of the CPHP.

Archaeological Resources

Archaeological resources can include historical resources according to CEQA Guidelines Section 15064.5 as well as unique archaeological resources as defined in CEQA Guidelines Section 21083.2(g). The significance of most prehistoric and historical archaeological sites is usually assessed under National Register and California Register criteria D/4. These criteria stress the importance of the information potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Although it is less common, archaeological resources may also be assessed under California Register criteria 1, 2, and/or 3.

Impacts to unique archaeological resources or archaeological resources that qualify as historical resources are assessed pursuant to Section 21083.2 of the CEQA statute, which states that the lead agency shall determine whether the project may have a significant effect on archaeological resources. As with architectural resources above, whether the impacts of the project would "cause a substantial adverse change in the significance" of the resource must be determined (CEQA Guidelines Section 15064.5[b]).

Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including PRC Section 5097.98 and Health and Safety Code Section 7050.5. These laws are identified above in the Regulatory Framework. This analysis considers impacts on human remains, including intentional disturbance, mutilation, or removal of interred human remains.

Tribal Cultural Resources

A tribal cultural resource is defined as a site feature, place, cultural landscape, sacred place or object, which is of cultural value to a tribe that is either on or eligible for the California Register or a local historic register, or the lead agency, at its discretion, chooses to treat the resource as a tribal cultural resource. Impacts to tribal cultural resources are assessed in consultation with affiliated Native American tribe in accordance with PRC Section 21080.3. This analysis considers whether campus development under the proposed CPHP would cause damaging effects to any tribal cultural resource.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact CUL-1: Implementation of the CPHP would result in a substantial adverse change in the significance of known historical resources. (Significant and Unavoidable with Mitigation)

CPHP

Under the proposed CPHP, the following historical resources would be demolished, the effects of which are discussed below:

- UC Hall (eligible for listing in the California Register), which includes the Zakheim murals in Toland Hall;

- Millberry Union (eligible for listing in the National and California Registers) - demolished either wholly or partially;
- School of Dentistry (individually eligible for listing in the National and California Registers);
- LPPI (individually eligible for listing in the National and California Registers);[1]
- Aldea San Miguel Housing Building 8 (individually eligible for listing in the National and California Registers);
- Aldea San Miguel Housing Building 10 (individually eligible for listing in the National and California Registers); and
- Aldea San Miguel Housing Building 12 (individually eligible for listing in the National and California Registers).

As explained further below, the demolition of these buildings under the proposed CPHP would be considered a significant impact.

In addition, under the proposed CPHP, the following historical resources could be physically altered:

- Expansion of Saunders Court (presumed individually eligible for listing in the National and California Registers as a cultural landscape);
- Modification of Reserve boundary (individually eligible for listing in the California Register as a cultural landscape);
- Renovation of HSIR East (presumed individually eligible for listing in the National and California Registers);
- Renovation of HSIR West (presumed individually eligible for listing in the National and California Registers); and
- Renovation of Medical Sciences building (individually eligible for listing in the National and California Registers).

The specific details of proposed alterations and improvements to these historical resources are not known at this time, and consequently, these alterations are presumed to result in significant impacts.

UC Hall

As discussed in the Environmental Setting, UC Hall, built in 1917, is one of the oldest building on the Parnassus Heights campus site. It has been determined to be potentially eligible for the California Register under criterion 1 for its association with the broad pattern of development of medical research centers and hospitals in San Francisco and criterion /3 as an early work of architect Lewis P. Hobart, as an excellent example of the Beaux-Arts style in San Francisco, and for the murals in Toland Hall that were painted by Bernard Zakheim, a student of Diego Rivera, between 1935 and 1938 (Carey & Co., 2003; Page & Turnbull, 2005). A reconnaissance-level

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[1] The three support buildings associated with the LPPI building – LPPI Butler, LPPI Paint Shed, and LPPI OPI – have been determined to be ineligible for listing in the National Register and California Register (Carey, 2011). These buildings are not identified on any local registers or surveys and are not considered historical resources for CEQA purposes.

pedestrian survey of this building by ESA in 2019 found that it is essentially unchanged since its original evaluation in 2003, and as such, its historic status would remain unchanged. It should be noted that under the 1996 LRDP, UC Hall was slated for demolition, and under the 2014 LRDP, UC Hall was proposed to be retained and seismically retrofitted for conversion to residential use (in part). Under the proposed CPHP, UC Hall would be demolished to allow for construction of a new Research and Academic Building (RAB). The demolition of UC Hall would be considered a significant impact on a historic resource.

The series of Zakheim murals are located within the single-story Toland Hall auditorium in UC Hall. These murals were commissioned as part of the Works Progress Administration (WPA) Federal Art Project and depict, in 10 panels, scenes of the history of science and medicine in California — including portrayals of traditional Native American medicine; scenes from Spanish, early American and Gold Rush California; and the founders of the UC Medical School. The murals were painted using the same traditional method of creating frescoes developed during the Italian Renaissance in which pigment is rapidly applied directly to wet plaster so that it becomes an integral part of the plaster, resulting in a chemical reaction that forms a surface of calcium carbonate on top of the pigment. Original skylights also remain in the auditorium, and the two surviving original interior stairwells feature marble treads and steel balustrades topped by a clear varnished wood handrail. A “Carved Frame” oak carving (Carved Frame) by Michael Von Meyer and James Warrender was also commissioned as part of the WPA Federal Art Project and is located in Toland Hall. Although UC Hall’s interior has been extensively modified, Toland Hall and its corresponding murals remain intact (UCSF, 2005).

In 2005, UCSF completed Historic American Buildings Survey (HABS)-like documentation of UC Hall that includes a narrative report and photographic documentation (Page & Turnbull, 2005). As specified below, HABS-like documentation is required as part of mitigation for the demolition of this building, and this effort provides a documentary record of the building in its existing condition, and documents the significant interior and exterior features of the building.

As noted above, under the 1996 LRDP, UC Hall was designated for demolition. UCSF’s second amendment to the 1996 LRDP in 2005 (2005 LRDP Amendment) continued to propose the demolition of UC Hall, however, unlike the 1996 LRDP EIR, the 2005 LRDP Amendment EIR concluded that demolition of UC Hall would result in a significant impact to a historical resource due to then-current revisions to CEQA regarding resource eligibility. When certifying the 2005 LRDP Amendment EIR, the Regents adopted a mitigation measure which not only included HABS-like documentation of UC Hall, but also included the removal of the Zakheim murals from UC Hall’s Toland Hall prior to demolition and their subsequent conservation at an appropriate facility. The 2005 LRDP Amendment EIR concluded that, even with these mitigation measures, the impact of the proposed demolition of UC Hall would remain significant and unavoidable. At the time, the Regents did not approve funding for demolition of UC Hall or approve the demolition itself in connection with adoption of the 2005 LRDP Amendment.

Since then, in 2020, UCSF completed two independent studies that include detailed technical assessments on how the Zakheim murals could be physically preserved, removed and relocated from their current location in UC Hall. (Page & Turnbull, 2020; Architectural Resources Group, 2020.) Given the nature of the frescoes and their vulnerability to cracking, the physical condition of some of the panels which have experienced water damage over the years, the murals' large size, the curved shape of the walls on which most of the panels are painted, ground movements, and the aging of UC Hall (all described in the above noted studies), UCSF has determined that it may be infeasible to remove and relocate the Zakheim murals as there is no guarantee that any effort to remove the Zakheim murals would be successful. Based on those independent studies, there is a likelihood that removal of the Zakheim murals may potentially cause serious damage to at least some of the panels such that the integrity of the entire series is destroyed (Page & Turnbull, 2020). In addition, UCSF has determined that the estimated $7.6 million cost of physical preservation, removal and relocation is prohibitive in light of UCSF's primary responsibility to support its academic health care mission.

Because UCSF has determined that it will not attempt to remove the Zakheim murals, UCSF has notified the U.S. General Services Administration (GSA), which inventories artworks created under the WPA, the family and surviving heirs of Bernard Zakheim, as well as philanthropists and nonprofit groups with an art-related purpose, in order to determine if a third-party will assume the responsibility of physically removing, preserving and relocating the Zakheim murals. Although a search of UCSF's records did not indicate that any interest to the Zakheim murals was preserved by GSA on behalf of the United States, UCSF provided notice of the Zakheim murals' potential destruction in accordance with GSA's stated policies and guidance for disposal of artwork and sculptures commissioned under the WPA. (Legal Title to Art Work Produced Under the 1930s and 1940s New Deal Administration, 2019.) Following receipt of UCSF's notice to GSA regarding the potential destruction of the Zakheim murals, GSA has now asserted an ownership interest in the Zakheim murals on behalf of the United States, and has indicated that documentation exists to demonstrate that the Zakheim murals and the Carved Frame are on loan to UCSF. UCSF will continue to discuss the federal ownership claim of the Zakheim murals and the Carved Frame directly with GSA. UCSF also analyzed the Visual Artists' Rights Act (17 U.S.C. § 106A et seq.) and the California Art Preservation Act (California Civil Code § 987 et seq.) to identify their applicability to the Zakheim murals. While UCSF has determined that both sets of laws likely have limited or no application to the Zakheim murals, UCSF extended a written notice of UCSF's intent to demolish UC Hall and the Zakheim murals contained therein as a courtesy to the family of Bernard Zakheim. Finally, UCSF will publish a written notice as a display advertisement in the San Francisco Chronicle informing the public of its intention to demolish UC Hall and the Zakheim murals. (Cal. Civ. Code, § 989(e)(2)(A).) An existing organization with an art-related purpose will then have the opportunity to contact UCSF within 30 calendar days of the date that the notice is published in the San Francisco Chronicle, if such an organization wishes to preserve, remove and relocate the Murals.

Pursuant to Article 10 of the City Planning Code, the City of San Francisco has also initiated City Landmark designation procedures with the Board of Supervisors for the Zakheim murals. However, as UCSF is a constitutionally created state entity, it is not subject to local land use regulation whenever using land under its control in furtherance of its educational mission. While UCSF may consider the requirements of Article 10 of the City Planning Code when demolishing UC Hall and the Zakheim murals therein, it is not bound by the City's plans and policies. Similarly, if it is determined that GSA, on behalf of the United States, has retained federal ownership of the Zakheim murals, GSA also will not be bound by the City's plans and policies. The potential City Landmark designation would make no practical difference for purposes of the foregoing CEQA analysis because UC Hall and the Zakheim murals therein are already considered to be historical resources for CEQA purposes.

At this time, it is unknown whether the GSA, the family and surviving heirs of Bernard Zakheim, or any other nonprofit or community group will be interested and/or capable of removing the Zakheim murals without destroying their artistic integrity. For purposes of this EIR and to provide a conservative analysis, it is assumed that the Zakheim murals will be damaged or destroyed when UC Hall is demolished under the CPHP; this would be considered a significant impact. Although imposition of CPHP Mitigation Measure CUL-1b (Document Historical Resources Prior to Demolition or Alteration) and CPHP Mitigation Measure CUL-1d (Digital-Imaging and Virtual Preservation of Zakheim Murals in UC Hall) would reduce this impact, it would not mitigate it to a less-than-significant level and therefore would be considered significant and unavoidable.

Millberry Union

Built in 1955, Millberry Union was determined individually eligible for inclusion in the National Register and California Register (Carey & Co., 2011).[2] This evaluation found that the building is historically significant under National Register/California Register criteria A/1 as the first and only location on campus where students and faculty could share in social, cultural, and recreational activities. A reconnaissance-level pedestrian survey of this building by ESA in 2019 found that it is essentially unchanged since its original evaluation in 2011, and as such, its historic status would remain unchanged. Millberry Union is considered a historical resource for CEQA purposes.

Under the Future Phase of the proposed CPHP, the Millberry Union's two towers would be partially or completely demolished and replaced with a new building that could contain clinical, instruction, research, and campus community spaces. Partial or complete demolition of this building under the CPHP would be considered a significant impact.

School of Dentistry

Built in 1979, the School of Dentistry was determined individually eligible for inclusion in the National Register and California Register (Carey & Co., 2011). This evaluation found that the building is historically significant under National Register/California Register criteria A/1 because it was designed in response to a public controversy in the 1970s regarding building height and massing that directly influenced future development of the campus. Additionally, the building was found to be significant under criteria C/3 because it embodies the distinctive characteristics of the International Style, possesses high artistic value, represents the work of master architect John Funk. Although the building is less than 50 years of age, it was found to be "of exceptional architectural importance and captures a particularly important period in the late-twentieth-century history of UCSF," and it is therefore eligible under Criteria Consideration G (properties that have achieved significance within the last 50 years). A reconnaissance-level

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[2] Carey & Co.'s evaluation was an update to the 2006 evaluation by Historic Resource Associates of the "Millberry Union complex," which includes the Millberry Union building, the women's residence hall, and the men's residence hall. The Millberry Union Garage was not explicitly identified as part of the Millberry Union Complex.

pedestrian survey of this building by ESA in 2019 found that it is essentially unchanged since its original evaluation in 2011, and as such, its historic status would remain unchanged. The School of Dentistry is considered a historical resource for CEQA purposes.

Under the Future Phase of the proposed CPHP, the School of Dentistry would be demolished and replaced with a new building or buildings that would include primarily research and academic space. Demolition of this building under the CPHP would be considered a significant impact.

LPPI

LPPI (including three small support structures) would be demolished to allow for construction of the New Hospital. LPPI, constructed in 1941, has been determined to be eligible for listing in the National Register and California Register under criteria A/1 for its association with pioneering efforts by the University of California and the State of California to jointly address mental illness. The period of significance is 1943-73. Additionally, the building is eligible for listing under criteria A/1 for its association with LGBTQ history, particularly related to developments in legal and medical perspectives and treatment. The period of significance is 1943-ca. 1955 (Graves, 2019a). The building is proposed to be demolished under the CPHP, which would be considered a significant impact.

In 2019, UCSF completed HABS-like documentation of LPPI that includes a narrative report (Graves, 2019b). As specified below, HABS-like documentation is required as part of mitigation for the demolition of this building, and this effort provides a documentary record of the building in its existing condition and documents the significant interior and exterior features of the building.[3]

Aldea San Miguel Housing Buildings 8, 10, and 12

Constructed in 1960, the Aldea San Miguel Married Student Housing complex was originally comprised of 13 apartment buildings designed in the Second Bay Tradition, a regional aesthetic that dates from the 1920s to the 1960s. All but three of the original buildings – Aldea San Miguel 8, 10, and 12 – have been demolished. Each of these remaining buildings has been determined to be individually eligible for listing in the National Register and California Register under criteria C/3 as intact examples of the Second Bay Tradition. Under the proposed CPHP, these three buildings would be demolished to accommodate the initial Aldea Housing Densification project. Demolition of Aldea San Miguel Housing Buildings 8, 10, and 12 would be considered a significant impact.

Saunders Court

With the completion of the Health Sciences Instruction & Research building in 1967, the old Medical School Building was demolished. In its place Saunders Court was constructed, which forms one of the few designed open spaces on campus. Designed by renowned landscape architect Robert Royston, Saunders Court features columns from the old Medical School Building as well as the cornerstone from one of the original Affiliated Colleges buildings from 1898. It is

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[3] The National Park Service's *Preservation Brief 17: Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character* provides the following guidance: "Even though buildings may be of historic, rather than architectural significance, it is their tangible elements that embody its significance for association with specific events or persons and it is those *tangible elements* both on the exterior and interior that should be preserved."

named after John B. De C. M. Saunders (1903-1991), UCSF's first Provost (1958-1964) and first Chancellor (1964-1966).

Saunders Court was evaluated in 2011, at which time it was 43 years old, and was found to be a significant cultural landscape that may become eligible for listing in the National Register and California Register when it reaches 50 years of age (i.e., in 2018). As the only space on campus that embodies both the original Affiliated Colleges campus and the postwar expansion of the university, it appeared to be eligible under criteria A/1, and as the work of master Robert Roysten, it appeared to be eligible under criteria C/3. It is therefore presumed individually eligible for listing in the National and California Registers as a historical resource.

Under the proposed CPHP, Saunders Court would be expanded and connected on its west side to the proposed Promenade, a new east-west pedestrian corridor. Because detailed plans are not yet available, proposed alterations are presumed to result in a significant impact to Saunders Court.

Mount Sutro Open Space Reserve

The potential historical significance of the Reserve as a cultural landscape was evaluated as part of the UCSF *Mount Sutro Management Plan EIR* (UCSF, 2013). The analysis completed by Bradley, et al. (2013) found that the Reserve is a historical resource for the purposes of CEQA and is eligible for inclusion in the California Register of Historical Resources for its association with Adolph Sutro and his development of the Sutro Forest (the period of this significance is 1886-98) as well as for its association with the history of San Francisco and the informal development of this naturalistic landscape as a recreational area and green space for the City (the period of this significance is 1886 – present (UCSF, 2013).

The character-defining features of the Reserve that convey its historical significance include: (1) the presence of a forest that covers the overwhelming majority of the land area and whose dominant species is eucalyptus, (2) the presence of the Historic and Fairy Gates trails as part of a consciously laid out trail system and the presence of informal or social trails which have developed over time related to land use activities and to provide connections into Mount Sutro from the surrounding neighborhoods, and (3) the natural topographic characteristics of the site, including the steep terrain, the rock outcrops, Stanyan Canyon, and the summit (UCSF, 2013).

Under the proposed CPHP, the proposed New Hospital and associated widening of Medical Center Way adjacent to the New Hospital may require modification of the Reserve. Because detailed plans are not yet available, proposed alterations are presumed to result in a significant impact to the Reserve.

Summary

As discussed above, the proposed CPHP would result in the demolition of buildings that are individually eligible for listing in the National Register and/or California Register: UC Hall (including the Zakheim murals), Millberry Union, School of Dentistry, LPPI, and Aldea San Miguel Housing Buildings 8, 10, and 12. In addition, in the absence of detailed plans at this stage, other historical resources, including cultural landscapes, could be significantly physically altered under the CPHP: Saunders Court, Reserve, HSIR East, HSIR West, and Medical Sciences building. The demolition or significant alteration of these individually eligible resources would be considered a significant impact because, once demolished or significantly altered, they would no longer be eligible as historical resources under CEQA.

While the impact on individual historical resources cannot be mitigated to a less-than-significant level, implementation of **CPHP Mitigation Measures CUL-1a**, **CUL-1b**, and **CUL-1c** would require that UCSF identify character-defining features of the individually eligible resources, prepare HABS-like documentation, and develop a public interpretation and salvage plan. Additionally, **CPHP Mitigation Measure CUL-1d** would address the digital-imaging and virtual preservation of the Zakheim murals in UC Hall. Implementation of these measures would lessen the severity of the significant impact on historical resources but would not reduce this impact to a less-than-significant level.

CPHP Mitigation Measure CUL-1a: Identify Character-Defining Features

Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards identifies character-defining features of each historical resource. Despite being presumed or having been previously determined eligible for listing in the National Register and/or California Register, character-defining features of the historical resources that would be demolished or may be significantly altered under the CPHP have not been explicitly or adequately identified. According to guidance from the National Park Service, a historical resource "must retain… the essential physical features [i.e., character-defining features] that enable it to convey its historic identity. The essential physical features are those features that define both *why* a property is significant…and *when* it was significant" (National Park Service, 1997). The identification of character-defining features is necessary for complete documentation of each historical resource as well as appropriate public interpretation and salvage plans.

CPHP Mitigation Measure CUL-1b: Document Historical Resources Prior to Demolition or Alteration

Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards thoroughly documents each building and associated landscaping and setting. Documentation shall include still photography and a written documentary record of the building to the National Park Service's standards of the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER), including accurate scaled mapping and architectural descriptions. If available, scaled architectural plans will also be included. Photos include large-format (4"x5") black-and-white negatives and 8"x10" enlargements. Digital photography may be substituted for large-format negative photography if archived locally. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate. Copies of the records shall be submitted to the Northwest Information Center at Sonoma State University and the UCSF Kalmanovitz Library Archives and Special Collections.

CPHP Mitigation Measure CUL-1c: Public Interpretation and Salvage Plan

Prior to any demolition or significant alteration activities that would remove character-defining features of, or demolish, an individual historical resource on the project site, UCSF shall determine whether any such features may be salvaged, in whole or in part, during demolition/alteration. If it is determined that features are present that will be salvaged, a Salvage Plan shall be prepared by a qualified architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards and presented to UCSF Planning staff.

Prior to any demolition or significant alteration activities that would remove character-defining features of, or demolish, an individual historical resource on the project site, UCSF shall prepare a plan for interpretive displays. The specific location, media, and other characteristics of such interpretive display(s) shall be included in this proposal. The historic interpretation plan shall be prepared in coordination with an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards and an exhibit designer or landscape architect with historical interpretation design experience. Interpretive display(s) shall document the individually eligible resources to be demolished or altered. The interpretative plan should also explore contributing to digital platforms that are publicly accessible. A proposal describing the general parameters of the interpretive program and the substance, media, and other elements of such interpretive display shall be approved by UCSF Planning staff prior to commencement of any demolition activities. Following any demolition or alteration activities within the project site, UCSF shall provide within publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the individual historical resources.

CPHP Mitigation Measure CUL-1d: Digital-Imaging and Virtual Preservation of Zakheim Murals in UC Hall

Prior to the commencement of demolition activities at UC Hall, UCSF Planning staff shall work with a conservator experienced in digital preservation to develop and implement a digital imaging and virtual preservation proposal for the Zakheim murals in UC Hall. The proposal shall include a plan to digitally preserve the Zakheim murals through high-resolution three-dimensional digital recording that would be made available both online and through a planned interpretive virtual reality interpretive exhibit on campus to be maintained by the UCSF Library's Archives and Special Collections department. UCSF Planning staff shall ensure that the murals have been digitally recorded per the digital imaging and virtual preservation proposal prior to any demolition activities in Toland Hall. The digital recording shall be made available to the public online and the interpretive virtual reality interpretive exhibit shall be installed on campus within six months of the murals being digitally recorded.

Significance after Mitigation: Significant and Unavoidable.

Irving Street Arrival

The proposed Irving Street Arrival project would modify a portion of Medical Building 1 that functions as a pedestrian entrance extending from Irving Street to Parnassus Avenue. This would entail the modification or demolition of a portion of the Medical Building 1. In addition, the Irving Street Arrival project would replace the façades or reskin two Millberry Union and

Medical Building 1 parking garages. None of the affected buildings qualify as historical resources. The Irving Street Arrival project would have no impact on known historical resources.

> **Mitigation:** None required.

Research and Academic Building

The proposed RAB project would require the demolition of UC Hall, a historical resource, to accommodate a new research and academic building. The demolition of UC Hall is discussed above under the impact of the CPHP as a whole. As stated above, UC Hall is historically significant under criteria A/1 for its association with the broad pattern of development of medical research centers and hospitals in San Francisco. It is also eligible under criteria C/3 as an early work of architect Lewis P. Hobart, as an excellent example of the Beaux-Arts style in San Francisco, and for the murals in Toland Hall that were painted by Bernard Zakheim, which are considered to be a character-defining feature of the building. Under the proposed project, UC Hall would be demolished. The demolition of UC Hall would materially change the significance of the historical resource, resulting in a significant impact.

> **Mitigation:** Implement CPHP Mitigation Measures CUL-1a through -1d.
>
> **Significance after Mitigation:** Because demolition of UC Hall under the CPHP would result in a substantial adverse change in the significance of a historical resource, no measures would fully mitigate these actions to a less-than-significant level. Therefore, even with implementation of CPHP Mitigation Measures CUL-1a, CUL-1b, CUL-1c, and CUL-1d, the impact would be significant and unavoidable.
>
> **Significance after Mitigation:** Significant and Unavoidable.

Initial Aldea Housing Densification

The proposed initial Aldea Housing Densification project would demolish three historical resources – Aldea San Miguel Housing Buildings 8, 10 and 12. The demolition of these resources is discussed above under the impact of the CPHP as a whole. As stated above, these three resources are individually eligible under criteria C/3 as intact examples of the Second Bay Tradition of architecture. The demolition of these buildings would materially change the significance of historical resources, resulting in a significant impact.

> **Mitigation:** Implement CPHP Mitigation Measures CUL-1a through -1c.
>
> **Significance after Mitigation:** Because demolition of Aldea San Miguel Housing Buildings 8, 10, and 12 under the Initial Phase of CPHP would result in a substantial adverse change in the significance of historical resources, no measures would fully mitigate these actions to a less-than-significant level. Therefore, even with implementation of CPHP Mitigation Measures CUL-1a, CUL-1b, and CUL-1c, the impact would be significant and unavoidable.
>
> **Significance after Mitigation:** Significant and Unavoidable.

Initial Phase Improvements

As described in Chapter 3, *Project Description*, the Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. Opportunity sites for notable renovations to known historical resources include the HSIR East, HSIR West, and Medical Sciences buildings. In addition, as part of the utility improvements in the Initial Phase, some tree removal and grading alterations within the hillside portion of the Reserve adjacent to Medical Center Way would occur to accommodate proposed fuel tanks.

As discussed above, since the specific details of proposed alterations and improvements to these historical resources are not known at this time, they are presumed to result in significant impacts.

> **Mitigation:** Implement CPHP Mitigation Measures CUL-1a through -1c.
>
> **Significance after Mitigation:** Because these alterations and improvements may result in substantial adverse change in the significance of historical resources, no measures would fully mitigate these actions to a less-than-significant level. Therefore, even with implementation of CPHP Mitigation Measures CUL-1a, CUL-1b, and CUL-1c, the impact would be significant and unavoidable.
>
> **Significance after Mitigation:** Significant and Unavoidable.

Impact CUL-2: Implementation of the CPHP would result in a substantial adverse change in the significance of potential future historical resources that may become eligible by the full build-out of the CPHP in 2050. (Significant and Unavoidable with Mitigation)

CPHP

The following buildings would be altered or demolished under the proposed CPHP. These buildings either already meet or will meet the 45-year age criterion by the full build-out of the CPHP in 2050. They have not been previously evaluated and may become eligible for listing in the National and/or California Registers:

- Millberry Union Garage;
- 75 Behr Avenue;
- 80 Behr Avenue;
- 85 Behr Avenue;
- 90 Behr Avenue;
- 95 Behr Avenue;
- 45 Johnstone Drive;
- 50 Johnstone Drive;
- 20 Adolph Sutro Court; and
- 30 Adolph Sutro Court.

The eligibility of these buildings is not known at this time, and consequently, demolition or significant alteration of these buildings in the Future Phase is conservatively presumed to result in significant impacts to historical resources.

While the impact on individual historical resources cannot be mitigated to a less-than-significant level, implementation of **CPHP Mitigation Measures CUL-1a**, **CUL-1b**, and **CUL-1c** would require that UCSF identify character-defining features of potentially eligible resources, prepare HABS-like documentation, and develop a public interpretation and salvage plan. Implementation of these measures would lessen the severity of the significant impact but would not reduce this impact to a less-than-significant level.

> **Mitigation:** Implement CPHP Mitigation Measures CUL-1a through -1c.
>
> **Significance after Mitigation:** Because demolition or significant alteration of potential historical resources could result in a substantial adverse change in the significance of historical resources, no measures would fully mitigate these actions to a less-than-significant level. Therefore, even with implementation of CPHP Mitigation Measures CUL-1a, CUL-1b, and CUL-1c, the impact would be significant and unavoidable.
>
> **Significance after Mitigation:** Significant and Unavoidable.

* * *

Impact CUL-3: Implementation of the CPHP could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. (Less than Significant with Mitigation)

CPHP

Based on a review of site distribution and the environmental context, there are no previously recorded archaeological resources in the Plan area, and majority of the Plan area where development would occur under the CPHP is highly disturbed from extensive use and prior development. Furthermore, the largely undisturbed slope east of Medical Center Way that would be encroached by the proposed New Hospital and widened Medical Center Way is steep and not conducive to use or occupation.

The Plan area has a low potential to uncover previously undiscovered prehistoric archaeological resources. Background research indicates that no previously recorded prehistoric archaeological resources are within the Plan area. Previous researchers have not identified resources attributable to Ishi in areas of archaeological testing (Holman, 1998).[4] The nearest prehistoric archaeological resources are located over three miles to the east near Mission Bay or over three miles to the west near Ocean Beach (NWIC, 2019). Based on the extensive use and previous disturbance of the Plan area there is also a very low potential to uncover historic-era archaeological resources.

In the unlikely event that archaeological materials are discovered during construction (including grading, excavation and other earthmoving activities), a substantial adverse change to a resource found to qualify as an historical resource per CEQA Guidelines Section 15064.5 or a unique archaeological resource, as defined in CEQA Section 21083.2(g), could be potentially significant. With implementation of **CPHP Mitigation Measure CUL-3**, campus site development under the

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[4] Ishi was the lone survivor of the northern California tribe of Yahi Indians, who lived and worked at the Anthropology Museum on the UCSF Parnassus Heights campus site between 1911 and 1916.

proposed CPHP would have a less-than-significant impact on previously unknown archaeological resources. Therefore, this impact would be less than significant with mitigation.

> **CPHP Mitigation Measure CUL-3: Inadvertent Discovery of Archaeological Resources and Tribal Cultural Resources**
>
> Prior to commencement of construction activities, all on-site personnel shall attend a mandatory pre-project training to outline the general archaeological and tribal cultural sensitivity of the project area. The training will include a description of the types of resources that could be encountered and the procedures to follow in the event of an inadvertent discovery of resources.
>
> If prehistoric or historic-era archaeological resources are encountered by construction personnel during ground-disturbing activities, all construction activities within 100 feet shall halt and the contractor shall notify the UCSF Environmental Coordinator (EC). The UCSF EC shall retain a Secretary of the Interior-qualified archaeologist (qualified archaeologist) to inspect the find within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource, construction shall cease in an area determined by the qualified archaeologist until a mitigation plan has been prepared and implemented [CEQA Guidelines 15064.5(b)(4)]. If the find is a potential tribal cultural resource, the UCSF EC shall contact a Native American representative or representatives (as provided by the Native American Heritage Commission) [PRC 21074(2)(c)]. The qualified archaeologist, in consultation with the UCSF EC and the Native American representative(s), shall determine when construction can resume.
>
> If the resource is determined to be a historical resource or a unique archaeological resource, the preferred mitigation shall be preservation in place. In accordance with PRC Section 21083.2(b), preservation in place shall be accomplished through: (1) modifying the construction plan to avoid the resource; (2) incorporating the resource within open space; (3) capping and covering the resource; or (4) deeding the resource site into a permanent conservation easement. If preservation in place is not feasible, the qualified archaeologist, in consultation with the UCSF EC and the Native American representative(s) (if the resource is prehistoric), shall prepare and implement a detailed treatment plan. In all cases treatment will be carried out with dignity and respect (including protecting the cultural character, traditional use, and confidentiality of the resource). For prehistoric resources, the Native American representative(s) will be consulted on the research approach, methods, and whether burial or data recovery or alternative mitigation is appropriate for the find. Treatment for most resources could consist of (but shall not be limited to) sample excavation, site documentation, and historical research, as appropriate to the discovered prehistoric resource. The treatment plan shall include provisions for analysis of data in a regional context as appropriate to the discovered prehistoric resource, reporting of results within a timely manner, and dissemination of reports to local and state repositories, libraries, and interested professionals.
>
> **Significance after Mitigation:** Less than Significant.

Irving Street Arrival

Due to prior ground disturbance and development on the project site, excavation and other ground disturbing activities associated with the Irving Street Arrival project would have a low potential to affect previously unknown archaeological resources. However, if archaeological resources were encountered and inadvertently damaged during construction, the impact could be potentially significant.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Research and Academic Building

Due to prior ground disturbance and development of UC Hall on the project site, excavation and other ground disturbing activities associated with the RAB project would also have a low potential to affect previously unknown archaeological resources. However, if archaeological resources were encountered and inadvertently damaged during construction, the impact could be potentially significant.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Initial Aldea Housing Densification

The proposed densification project would be located on the same areas that are currently occupied by Aldea Housing Buildings 8, 10, and 12. Excavation and other ground disturbing activities associated with the initial Aldea Housing Densification project would have a low potential to affect previously unknown archaeological resources. However, if archaeological resources were encountered and inadvertently damaged during construction, the impact could be potentially significant.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Initial Phase Improvements

The majority of Initial Phase improvements would occur in previously disturbed areas. Limited excavation and other ground disturbing activities associated with construction of Initial Phase improvements would have a low potential to affect previously unknown archaeological resources. However, if archaeological resources were encountered and inadvertently damaged during construction, the impact could be potentially significant. Implementation of CPHP Mitigation Measure CUL-3 would ensure construction of Initial Phase improvements within the campus site would have a less-than-significant impact on previously unknown archaeological resources. Any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to similar applicable measures as imposed by the City.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Impact CUL-4: Implementation of the CPHP could disturb human remains, including those interred outside of dedicated cemeteries. (Less than Significant with Mitigation)

CPHP

There are no known human remains, including those interred outside of dedicated cemeteries, located in the Plan area. In the event that construction activities disturb unknown human remains within the Plan area, any inadvertent damage to human remains could be considered a significant impact. With implementation of **CPHP Mitigation Measure CUL-4**, campus development under the proposed CPHP would have a less-than-significant impact on previously unknown human remains. Therefore, this impact would be less than significant with mitigation.

> **CPHP Mitigation Measure CUL-4: Inadvertent Discovery of Human Remains**
>
> In the event of discovery or recognition of any human remains during ground-disturbing activities, treatment shall comply with all applicable state and federal laws. All construction activities within 100 feet shall halt and the contractor shall notify the UCSF Environmental Coordinator (EC). In accordance with PRC 5097.98, the UCSF EC shall contact the San Francisco Office of the Medical Examiner (Medical Examiner) to determine that no investigation of the cause of death is required. The Medical Examiner shall contact the Native American Heritage Commission (NAHC) within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American. Within 48 hours, the MLD shall make recommendations to the UCSF EC of the appropriate means of treating the human remains and any grave goods. Whenever the NAHC is unable to identify an MLD, the MLD fails to make a recommendation, or the parties are unable to agree on the appropriate treatment measures, the human remains shall be reinterred with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.
>
> **Significance after Mitigation:** Less than Significant.

Irving Street Arrival

Due to prior ground disturbance and development on the project site, excavation and other ground disturbing activities associated with the Irving Street Arrival project would have a low potential to encounter unknown human remains. However, if human remains were encountered and inadvertently damaged during construction, the impact could be potentially significant.

> **Mitigation:** Implement CPHP Mitigation Measure CUL-4.
>
> **Significance after Mitigation:** Less than Significant.

Research and Academic Building

Due to prior ground disturbance and development of UC Hall on the project site, excavation and other ground disturbing activities associated with the RAB project would also have a low potential to affect previously unknown human remains. However, if human remains were encountered and inadvertently damaged during construction, the impact could be potentially significant.

> **Mitigation:** Implement CPHP Mitigation Measure CUL-4.

Significance after Mitigation: Less than Significant.

Initial Aldea Housing Densification

The proposed densification project would be located on the same areas that are currently occupied by Aldea Housing Buildings 8, 10 and 12. Excavation and other ground disturbing activities associated with the initial Aldea Housing Densification project would have a low potential to affect previously unknown human remains. However, if human remains were encountered and inadvertently damaged during construction, the impact could be potentially significant.

Mitigation: Implement CPHP Mitigation Measure CUL-4.

Significance after Mitigation: Less than Significant.

Initial Phase Improvements

The majority of Initial Phase improvements would occur in previously disturbed areas. Limited excavation and other ground disturbing activities associated with construction of Initial Phase improvements would have a low potential to affect previously unknown human remains. However, if human remains were encountered and inadvertently damaged during construction, the impact could be potentially significant. Implementation of CPHP Mitigation Measure CUL-4 would ensure construction of Initial Phase improvements within the campus site would have a less-than-significant impact on previously unknown human remains. Similarly, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to applicable measures as imposed by the City.

Mitigation: Implement CPHP Mitigation Measure CUL-4.

Significance after Mitigation: Less than Significant.

Impact CUL-5: Implementation of the CPHP could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe. (Less than Significant with Mitigation)

CPHP

Based on the background research and environmental context, there are no known tribal cultural resources in areas proposed for ground disturbance or other improvements within the Plan area. Proposed improvements would not occur within a reported location of geographic features associated with UCSF's early 19th century Native American resident *Ishi*. On September 9, 2019, UCSF sent notification letters of UCSF's proposal to undertake the CPHP to the applicable representatives for the Amah Mutsun Tribal Band of Mission San Juan Bautista; Coastanoan Rumsen Carmel Tribe; Ohlone Indian Tribe; Indian Canyon Mutsun Band of Costanoan; Torres Martinez Desert Cahuilla Indians; and Muwekma Ohlone Indian Tribe of the San Francisco Bay

Area. No responses to the notification letters were received from the tribes within the 30-day response period, consistent with the requirements of PRC 21080.3.1(d).

There remains, however, the potential that ground disturbance could impact previously undiscovered or buried archaeological resources that could also be considered tribal cultural resources. Impacts to tribal cultural resources could be potentially significant. With implementation of **CPHP Mitigation Measure CUL-3**, the Plan would have a less-than-significant impact on previously unknown tribal cultural resources. Therefore, this impact would be less than significant with mitigation.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Irving Street Arrival

Due to prior ground disturbance and development on the project site, excavation and other ground disturbing activities associated with the Irving Street Arrival project would have a low potential to encounter unknown tribal cultural resources. However, if such resources were encountered and inadvertently damaged during construction, the impact could be potentially significant.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Research and Academic Building

Due to prior ground disturbance and development of UC Hall on the project site, excavation and other ground disturbing activities associated with the RAB project would also have a low potential to affect previously unknown tribal cultural resources. However, if such resources were encountered and inadvertently damaged during construction, the impact could be potentially significant.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Initial Aldea Housing Densification

The proposed densification project would be located on the same areas that are currently occupied by Aldea Housing Buildings 8, 10, and 12. Excavation and other ground disturbing activities associated with the initial Aldea Housing Densification project would have a low potential to affect previously unknown tribal cultural resources. However, if such resources were encountered and inadvertently damaged during construction, the impact could be potentially significant.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Initial Phase Improvements

The majority of Initial Phase improvements would occur in previously disturbed areas. Limited excavation and other ground disturbing activities associated with construction of Initial Phase improvements would have a low potential to affect previously unknown tribal cultural resources. However, if tribal cultural resources were encountered and inadvertently damaged during construction, the impact could be potentially significant. Implementation of CPHP Mitigation Measure CUL-3 would ensure construction of Initial Phase improvements within the campus site would have a less-than-significant impact on previously unknown tribal cultural resources. Similarly, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to applicable measures as imposed by the City.

Mitigation: Implement CPHP Mitigation Measure CUL-3.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact C-CUL-1: Implementation of the CPHP would result in cumulatively considerable impacts on cultural and/or tribal cultural resources, in combination with past, present and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site. (Significant and Unavoidable with Mitigation for Historical Resources; Less than Significant with Mitigation for Archaeological Resources, Human Remains, and Tribal Cultural Resources)

Historical Resources

Implementation of the proposed CPHP could result in the demolition or substantial alteration of historical resources at the Parnassus Heights campus site. As discussed above, there are 71 individual buildings on the campus, 25 of which are considered historical resources for the purposes of CEQA. Additionally, two cultural landscapes are considered historical resources: Saunders Court and the Reserve. Under the proposed CPHP, five historical resources would be partially or completely demolished, and four additional historical resources could be physically altered. Furthermore, 13 other buildings that would be altered or demolished under the proposed CPHP will meet the 45-year age criterion by the full build-out of the CPHP in 2050, and they may become eligible for listing in the National and/or California Registers.

In addition to the demolition of the LPPI (addressed in Impact CUL-1, above), the 2014 LRDP authorized the demolition of several other buildings on the Parnassus Heights campus site: Koret Vision Center, EHS, Surge, Woods, and Proctor buildings. Of these, the Surge building was determined to be a historical resource and would be demolished over the course of the CPHP. The Surge building, constructed in 1966, is presumed eligible for the National and California Registers. Feasible mitigation was identified in the 2014 LRDP FEIR to address the loss of this building. However, the mitigation was determined to not reduce the impact to a less-than-significant level. The Koret Vision Center was determined ineligible for listing in the National and California Registers, even though it was not yet age-eligible in 2014. It is possible that additional historical perspective could be gained and the Koret Vision Center could be determined eligible prior to its demolition under the CPHP. Since cumulative impacts to historical resources have been determined to be considerable, demolition of the Koret Vision Center would not alter the cumulative context to the degree that the CPHP's contribution would change. The result would still be a cumulatively considerable impact on historical resources.

Similarly, despite mitigation, the demolition of UC Hall and the Aldea Housing Buildings 8, 10 and 12, and the demolition or alteration of 13 other buildings that may become eligible by the full build-out of the CPHP in 2050 would combine with known or reasonably foreseeable demolition or alteration projects on the campus site and its vicinity to result in cumulatively considerable impacts. UC Hall is the oldest extant building on the campus site and the oldest hospital built for use by the UC's School of Medicine. It is the only remaining building on the campus site designed and built in the Beaux-Arts style of architecture. Furthermore, it is prominently sited on the south side of Parnassus Avenue and is highly visible due to its steeply sloped site. Therefore, cumulative impacts to historical resources from the implementation of the CPHP are considered significant and unavoidable.

Mitigation: Implement CPHP Mitigation Measures CUL-1a through -1d.

Significance after Mitigation: Significant and Unavoidable.

Archaeological Resources, Human Remains, and Tribal Cultural Resources

The geographic scope for cumulative effects on archaeological resources, human remains, and tribal cultural resources includes the immediate vicinity of locations where the proposed CPHP could cause disturbance to archaeological resources, human remains, and/or tribal cultural resources. Cumulative projects in the vicinity could have a significant impact on previously undiscovered archaeological resources, including human remains interred outside of formal cemeteries, during ground-disturbing activities. The potential impacts of the CPHP when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on buried archaeological resources or human remains. However, implementation of CPHP Mitigation Measures CUL-3 and CUL-4 would require that work halt in the vicinity of a find until it is evaluated by a Secretary of the Interior-qualified archaeologist, and in the case of human remains the County Coroner. In addition, cumulative projects undergoing CEQA review would have similar types of inadvertent discovery measures. Therefore, with implementation of CPHP Mitigation Measures CUL-3 and CUL-4, the proposed project's contribution to cumulative impacts would not be considerable, and the impact would be less than significant with mitigation.

Mitigation: Implement CPHP Mitigation Measures CUL-3 and CUL-4.

Significance after Mitigation: Less than Significant.

4.4.5 References

Bradley, Denise and Knapp & VerPlanck Preservation Architects, 2013. *Final Mount Sutro Open Space Reserve Cultural Landscape Evaluation Report,* October 3, 2011; revised January 10, 2013.

Carey & Co.,2003. *University of San Francisco Parnassus Heights Campus, Historic Resource Evaluation Report*. September.

Carey & Co., 2011. *UCSF Historic Resources Survey*. February.

Graves, Donna, 2019a. *Historic Evaluation for Langley Porter Psychiatric Institute,* April 2019.

Graves, Donna, 2019b. *Langley Porter Psychiatric Hospital & Clinics, Historic American Buildings Survey (HABS)-Like Documentation,* April 2019.

Holman & Associates, 1998. *Summary of Findings of the Archaeological Testing of the Proposed Handicapped Access Ramp at the Chancellor's Residence, Near the Rock Shelter Known as Ishi's Cave*, May 7.

Levy, Richard S., 1978. Costanoan: In *Handbook of North American Indians Volume 8: California*, R. F. Heizer, ed., pp. 485–495. Washington, Smithsonian Institution.

Milliken, Randall. 1995. *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area, 1769–1810.* Menlo Park, CA: Ballena Press Publishers' Services.

Milliken, Randall, Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Leventhal, Randy S. Wiberg, Andrew Gottsfield, Donna Gillette, Viviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson, 2007. Punctuated Cultural Change in the San Francisco Bay Area. In *California Prehistory: Colonization, Culture, and Complexity*. Jones, Terry L., Klar, Kathryn A., ed., Altamira Press, Maryland.

National Park Service (NPS), 1988. *Preservation Brief 17: Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character,* September. Accessed March 15, 2020, at https://www.nps.gov/tps/how-to-preserve/briefs/17-architectural-character.htm.

NPS, 1997. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation.*

Page & Turnbull, 2005. *UC Hospital, 533 Parnassus Avenue, University of California, San Francisco Parnassus Heights Campus San Francisco, California, Historic American Building Survey Documentation*, November.

Page & Turnbull, 2020. Email from Greg Yanito to Patti Mitchell, April 22.

University of California, San Francisco (UCSF), 2005. *Environmental Impact Report for LRDP Amendment No. 2 – Hospital Replacement Program.* January 14.

UCSF, 2013. *Mount Sutro Management Project Draft Environmental Impact Report*. December.

UCSF, 2014. UCSF 2014 Long Range Development Plan. November.

Northwest Information Center (NWIC), 2019. California Historical Resources Information System Database at Sonoma State University, Rohnert Park, California. File No. 19-0705.

4.5 Energy

Section 21100(b) of the California Public Resources Code (PRC) directs all State Agencies, Boards, and Commissions to assess the environmental impacts of projects for which they are a Lead Agency under CEQA to determine whether a project could result in significant effect on the environment, including effects from the wasteful, inefficient, and unnecessary consumption of energy, and to identify mitigation measures to minimize any such significant effects.

This section discusses the existing energy-related profiles for the state and for the Parnassus Heights campus site. The current regulatory and policy frameworks that govern the production and consumption of energy resources and aim to increase energy efficiency while reducing reliance on fossil fuels are also described. The potential for the construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and other Initial Phase improvements, is then assessed to result in significant impacts based on the California energy profile (i.e., mix of energy resources and consumption characteristics), the regional energy production and transmission profile of Pacific Gas & Electric Company (PG&E; the regional purveyor of natural gas and electricity throughout the Bay Area and much of central and northern California) as well as the local energy profile for the Parnassus Heights campus site., and the section examines the proposed CPHP's energy usage characteristics to determine whether the CPHP could result in any significant energy-related environmental impacts during its construction or operation activities. The section also includes an analysis of cumulative energy impacts. Lastly, this section identifies feasible mitigation measures that could mitigate any potentially significant impacts.

4.5.1 Environmental Setting

State Setting

Energy Profile

Total energy usage in California was 7,881 trillion British Thermal Units (Btu) in 2017 (the most recent year for which this specific data is available), which equates to an average of 200 million Btu per capita. These figures place California 2nd among the nation's 50 states in total energy use and 48th in per capita consumption. Of California's total energy usage, the breakdown by sector is roughly 40 percent transportation, 23 percent industrial, 19 percent commercial, and 18 percent residential. Electricity and natural gas in California are primarily consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum-based fuel consumption is generally accounted for by transportation-related energy use (EIA, 2019a).

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation sources. Approximately 68 percent of the electrical power needed to meet California's demand is produced in the state; the balance, approximately 32 percent, is imported from the Pacific Northwest and the Southwest. In 2018, California's in-state electricity generation was derived from natural gas (47 percent); large hydroelectric resources (11 percent); nuclear sources (9 percent); renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (32 percent); coal (less than 1 percent); and petroleum coke/waste heat (less than 1 percent) (CEC, 2019a).

Electricity

In 2018, total system electric generation for California was 285,488 gigawatt-hours (GWh), down two percent from 2017's total generation of 278,939 GWh. Electricity from non-CO_2 emitting electric generation categories (i.e., nuclear, large hydroelectric, and renewable generation) accounted for more than 53 percent of total in-state generation for 2018, compared to 56 percent in 2017. As a result, California's in-state generation dropped by 6 percent (11,494 GWh) to 194,842 GWh. This decrease was due, in part, to reduced generation from hydroelectric power plants as dry conditions returned to the state. Net imports increased by 6 percent (4,944 GWh) to 90,648 GWh, partially offsetting the decline (CEC, 2019a).

The overall decline observed in California's total electric system generation for 2018 is consistent with energy demand trends. In recent years, electricity demand has been flat or slightly declining as energy efficiency programs have resulted in end-use energy savings and as customers install behind-the-meter solar photovoltaic (PV) systems that directly displace utility-supplied generation. In 2018, behind-the-meter solar generation[1] was estimated to be 13,582 GWh, a 20 percent increase from 2017. The strong growth in solar PV has had a measurable impact on utility-served load and, consequently, on total system electric generation (CEC, 2019a).

Increasingly, electricity is used in multiple transportation modes, including light-duty vehicles, transit buses, and light and heavy rail. In California, its use is forecast to emerge in battery-electric medium-duty trucks, battery-electric buses, catenary-electric port drayage trucks, and high-speed rail. The California Energy Commission (CEC) forecasts the statewide electricity demand for the transportation sector will increase from its 2017 level of 2,000 GWh annually to between approximately 12,000 and 18,000 GWh per year by 2030, depending on technology development and market penetration of the various vehicle types (CEC, 2018a).

Natural Gas

Californians consumed about 12,640 million therms of natural gas in 2018, which is equal to 1,264,000,000 million Btu (MMBtu) (CEC, 2019b). The natural gas market is evolving and service options expanding, but its use falls mainly into the following four sectors: residential, commercial, industrial, and electric power generation. In addition, natural gas is a viable alternative to petroleum fuels for use in cars, trucks, and buses. Nearly 45 percent of the natural gas burned in California is used for electricity generation, and most of the remainder is consumed in the residential (21 percent), industrial (25 percent), and commercial (9 percent) sectors. California depends on out-of-state imports for nearly 90 percent of its natural gas supply. Natural gas has become an increasingly important source of energy since the majority of the state's power plants rely on this fuel (CEC, 2019c).

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[1] Behind-the-meter solar generation refers to on-site solar generation facilities that are designed for a single building or facility. Since the power is generated and used on-site, it is not connected to the regional power grid, and thus referred to as "behind the meter."

Transportation Fuels

The energy consumed by the transportation sector accounts for roughly 40 percent of California's total energy consumption (EIA, 2019b). Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the U.S. Energy Information Administration, the state relies on petroleum-based fuels for 98 percent of its transportation needs (EIA, 2019c). Gasoline accounted for about 58 percent of total transportation sector energy consumption, 46 percent of total petroleum consumption, and 17 percent of total U.S. energy consumption (EIA, 2019d). California is the largest consumer of gasoline in the U.S. In 2018, approximately 31 percent of California's crude oil was obtained from within the state, about 11 percent came from Alaska, and the remaining 58 percent came from foreign lands (CEC, 2019d).

In 2018, taxable gasoline sales (including aviation gasoline) in California amounted to approximately 15.5 billion gallons (CBE, 2019), and taxable diesel fuel sales amounted to approximately 3.7 billion gallons (CEC, 2019e). The CEC forecasts demand for gasoline in California will range from 12.3 billion to 12.7 billion gallons in 2030, with most of the demand generated by light-duty vehicles. While the models show an increase in light-duty vehicles along population and income growth over the forecast horizon, total gasoline consumption is expected to decline, primarily due to increasing fuel economy (stemming from federal and state regulations) and gasoline displacement from the increasing market penetration of zero emission vehicles (ZEVs). For diesel, demand is forecast to increase modestly by 2030, following the growth of California's economy, but would be tempered by an increase in fleet fuel economy and market penetration of alternative fuels, most prominently by natural gas in the medium- and heavy-duty vehicle sectors (CEC, 2017).

California's oil fields comprise the fourth-largest petroleum-producing area in the U.S., behind federal offshore production, Texas, and North Dakota (EIA, 2019e). Crude oil is moved from area to area within California through a network of pipelines that carry it from both onshore and offshore oil wells to the refineries that are located in the San Francisco Bay Area, the Los Angeles area, and the Central Valley. Currently, 16 petroleum refineries operate in California, processing approximately two million barrels of crude oil per day (CEC, 2019f).

Other transportation fuel sources used in California include alternative fuels, such as methanol and denatured ethanol (alcohol mixtures that contain no less than 70 percent alcohol), natural gas (compressed or liquefied), liquefied petroleum gas, hydrogen, and fuels derived from biological materials (i.e., biogas).

Regional Setting

Pacific Gas and Electric Company

The nine-county Bay Area, including the Parnassus Heights campus site, is served by PG&E, an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000-square-mile service area that extends from Eureka in the north, to Bakersfield in the south, and from the Pacific Ocean on the west to the Sierra Nevada on the east.

Operating characteristics of PG&E's electricity and natural gas supply and distribution systems are provided below. Also discussed are regional consumption of transportation fuels.

Electric Utility Operations

PG&E provides "bundled" services (i.e., electricity generation, transmission, and distribution services) to most of the six million customers in its service territory, including residential, commercial, industrial, and agricultural consumers. Customers also can obtain electricity from alternative providers such as municipalities, or community choice aggregators as allowed under Assembly Bill 117 (2002), as well as from self-generation distributed resources, such as rooftop solar installations. In San Francisco alone, electricity consumption in 2018 was 5,602 GWh (CEC, 2019g).

In recent years, PG&E has continued to make improvements to its electric transmission and distribution systems to accommodate the integration of new renewable energy resources, distributed generation resources, and energy storage facilities, and to help create a platform for the development of new Smart Grid technologies that help with load balancing and ensuring reliable electricity delivery to end customers. In December 2014, the California Public Utilities Commission (CPUC) issued Decision D.14-12-079 that permits the California investor-owned electric utilities to own electric vehicle (EV) retail charging equipment in their respective service territories to help meet the state's goal of reducing greenhouse gas (GHG) emissions by promoting cleaner transportation. On February 9, 2015, PG&E filed an application to request that the CPUC approve their proposal to develop, maintain, and operate an EV-charging infrastructure in its service territory. In 2016, the CPUC established a three-year electric vehicle (EV) program of $130 million to deploy up to 7,500 charging stations (PG&E, 2018a). Further deployment of light duty EV infrastructure was considered and approved in a second phase of the program with a total PG&E budget of over $236 million per CPUC Decision D.18-05-040 (EPIC, 2018).

PG&E is required to maintain physical generating capacity adequate to meet the demand of its customers for electricity ("load"), including peak demand, to be delivered to locations and at times as may be necessary to provide reliable electric service. PG&E is required to dispatch or schedule all of the electricity resources within its portfolio in the most cost-effective way. PG&E obtains its electricity supplies from power plants in northern California and from electricity purchased outside its service area and delivered through high-voltage transmission lines that form the PG&E power grid (PG&E 2020).

In 2018, PG&E generated and/or procured a total of 48,832 gigawatt hours (GWh) of electricity generated by fossil fuel-fired and other non-renewable power plants (17 percent), nuclear power plants (34 percent), large hydroelectric power plants (22 percent), renewable power plants (39 percent), and other unspecified sources mainly comprised of net California Independent System Operator open market purchases (11 percent) (PG&E, 2019a). Of this total, PG&E owns 7,686 megawatts (MW) of generating capacity. The remaining electrical power is purchased from other sources in and outside of California. Approximately 20 percent of the electricity generated by PG&E comes from fossil fuel (natural gas)-fired sources (PG&E, 2019a).

Renewable Energy Resources

California law requires load-serving entities, such as PG&E, to gradually increase the amount of renewable energy they deliver to their customers to at least 33 percent of their total annual retail sales by 2020, 44 percent by 2024, 52 percent by 2027, and 60 percent by 2030. This program, known as the Renewables Portfolio Standard (RPS), became effective in December 2011, and has since been enhanced with the passage of Senate Bill (SB) 350 and SB 100 (see *Regulatory Setting*, for more information). Renewable generation resources, for purposes of the RPS program, include bioenergy such as biogas and biomass, small hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. As shown in **Table 4.5-1**, in 2018 approximately 39 percent of PG&E's energy deliveries were from qualifying renewable energy sources.

TABLE 4.5-1
PG&E RENEWABLE ENERGY SOURCES IN 2018

Source	Percent of Total Energy Portfolio
Biopower	4.4
Geothermal	3.7
Wind	10.0
RPS-Eligible Hydroelectric	2.7
Solar	18.1
Total	**38.9**

SOURCE: PG&E, 2019a, 2018 Joint Annual Report to Shareholders.

Electricity Transmission

Transmission lines are high voltage power lines that transmit electricity between electric substations. PG&E owns approximately 19,200 circuit miles of interconnected transmission lines operating at voltages ranging from 60 kilovolts (kV) to 500 kV. PG&E also operates approximately 92 electric transmission substations with a capacity of approximately 64,700 megavolt amperes (MVA). PG&E's electric transmission system is interconnected with electric power systems in the Western Electricity Coordinating Council, which includes many western states, Alberta and British Columbia, and parts of Mexico (Reuters, 2020).

PG&E periodically upgrades substations and reconductors transmission lines to improve maintenance and system flexibility, reliability, and safety. PG&E expects to undertake various new transmission projects over the next several years to upgrade and expand the capacity of its transmission system to secure access to renewable generation resources and replace aging or obsolete equipment and improve system reliability (PG&E, 2018a).

Electricity Distribution

Distribution power lines are lower voltage power lines that transmit electricity from electric substations to end user, such as residential and other land use developments. PG&E's electricity distribution network consists of approximately 107,200 circuit miles of distribution lines (of which approximately 20 percent are underground and approximately 80 percent are overhead), approximately 19,200 circuit miles of high voltage electric transmission lines, 59 transmission switching substations, and 605 distribution substations, with a capacity of approximately 31,800 MVA (PG&E, 2018b).

These distribution substations serve as the central hubs for PG&E's electric distribution network. Emanating from each substation are primary and secondary distribution lines connected to local transformers and switching equipment that link distribution lines and provide delivery to end-users. In some cases, PG&E sells electricity from its distribution facilities to entities, such as municipal and other utilities, that resell the electricity. PG&E also operates electric distribution control center facilities in Concord, Rocklin, and Fresno, California (PG&E, 2018b).

Natural Gas Operations

PG&E provides natural gas transmission services to "core" customers and to "non-core" customers (i.e., industrial, large commercial, and natural gas-fired electric generation facilities such as the Parnassus Central Utility Plant) that are connected to its gas system in its service territory. Core customers can purchase natural gas procurement service (i.e., natural gas supply) from either PG&E or non-utility third-party gas procurement service providers (referred to as core transport agents). When core customers purchase gas supply from a core transport agent, PG&E still provides gas delivery, metering, and billing services to those customers. When PG&E provides both transmission and procurement services, PG&E refers to the combined service as "bundled" natural gas service. Currently, more than 95 percent of core customers, representing nearly 80 percent of the annual core market demand, receive bundled natural gas service from PG&E (PG&E, 2018c).

PG&E does not provide procurement service to non-core customers, who must purchase their gas supplies from third-party suppliers. PG&E offers backbone gas transmission, gas delivery (local transmission and distribution), and gas storage services as separate and distinct services to its non-core customers. Access to PG&E's backbone gas transmission system is available for all natural gas marketers and shippers, as well as non-core customers. PG&E also delivers gas to off-system customers (i.e., outside of PG&E's service territory) and to third-party natural gas storage customers. In 2018, total consumption of natural gas in San Francisco was 228 million therms, or 22,800,000 MMBtu (CEC, 2019b).

Natural Gas Supplies

PG&E receives natural gas from all the major natural gas basins in western North America, including basins in western Canada, the Rocky Mountains, and the southwestern United States. PG&E also is supplied by natural gas fields in California. PG&E purchases natural gas to serve its core customers directly from producers and marketers in both Canada and the United States. The contract lengths and natural gas sources of PG&E's portfolio of natural gas purchase contracts have fluctuated generally based on market conditions. PG&E provides approximately 970 billion cubic feet of natural gas per year to its customers (PG&E, 2019b).

Natural Gas System Assets

PG&E owns and operates an integrated natural gas transmission, storage, and distribution system that includes most of northern and central California. PG&E's natural gas system consists of approximately 42,800 miles of distribution pipelines, over 6,400 miles of backbone and local transmission pipelines, and various storage facilities. PG&E owns and operates eight natural gas compressor stations on its backbone transmission system and one small station on its local transmission system that are used to move gas through PG&E's pipelines. PG&E's backbone transmission system is used to transport gas from PG&E's interconnection with interstate pipelines, other local distribution companies, and California gas fields to PG&E's local transmission and distribution systems.

Transportation Fuels

The energy consumed by the transportation sector accounts for roughly 41 percent of California's petroleum demand. Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the CEC, the state relies on petroleum-based fuels for 96 percent of its transportation needs. The transportation sector, including on-road and rail transportation (but excluding aviation), accounts for more than 96 percent of all motor gasoline use in the U.S., at roughly 3.4 million barrels in 2017. California is the third largest consumer of gasoline in the world, behind the U.S. (as a whole) and China (EIA, 2018). In 2018, approximately 31 percent of California's crude oil was produced within the state, about 11 percent was produced in Alaska, and the remaining 58 percent was produced in foreign lands (CEC, 2019b).

Gasoline and diesel fuel are by far the largest transportation fuels used by volume in San Francisco Bay Area. The total estimated 2018 sales of gasoline in San Francisco was 120 million gallons and the total estimated 2018 sales of diesel fuel in San Francisco was 10 million gallons (CEC, 2019e).

Other transportation fuel sources used in California include alternative fuels, such as methanol and denatured ethanol (alcohol mixtures that contain no less than 70 percent alcohol), natural gas (compressed or liquefied), liquefied petroleum gas (LPG), hydrogen, and fuels derived from biological materials (i.e., biomass).

Local Setting at Parnassus Heights Campus Site

The Parnassus Heights campus site is served by three cogeneration/steam (high, medium, and low pressure) networks that provide electricity and steam for heating and one chilled water network for cooling, all of which originate at the Parnassus Heights Central Utility Plant (CUP). The CUP cogeneration systems provide the primary source of electricity and water heating and cooling for the campus. The current fuel source for the cogeneration systems is natural gas obtained from PG&E's system. Three separate PG&E distribution power lines provide electricity to the campus to supplement the electricity generation capacity of the CUP during peak use periods. Following are discussions of the CUP and PG&E-provided services to the Parnassus Heights campus site obtained from the *UCSF Parnassus Heights Utility Master Plan* (UCSF, 2019).

Parnassus Heights Central Utility Plant

The CUP provides heating for the entire campus site via the steam networks, and provides cooling for six campus site buildings [Clinical Sciences Building (CSB), Medical Science Building (MSB), Dolby Regeneration Medicine Building (RMB), Health Sciences Instruction and Research Towers West and East (HSIR West and East), and Parnassus Services Building (PSB)]. The campus thermal loads were recently documented from existing CUP data provided by UCSF. This included chilled water and steam loads from several months during 2017 and 2018, including the hottest day experienced at the campus in recent history, and a typical design heating period. These loads formed the basis of assessing the peak heating and cooling capacity for the campus.

Chilled water data provided by UCSF includes plant load and building loads from the MSB, RMB, and HSIR West and East. The unit of measure to express amounts of cooled water is ton of refrigeration, defined as the rate of heat transfer that results in the freezing of one short ton (2,000 pounds) of pure ice in 24 hours. A ton of refrigeration is approximately equivalent to 12,000 Btu/hour or 3.5 kilowatts (kW). The current campus site cooling load is approximately 8,800 tons, of which only 2,400 tons is connected to the existing 5,400-ton capacity chilled water network. While maintaining a 1,200-ton redundancy at the CUP, this leaves excess capacity of 1,800 tons for use elsewhere on the campus site. Steam data includes low, medium, and high pressure loads for most Parnassus Heights campus site buildings. Steam demand, which encompasses heating and process steam, is divided by existing buildings due to a higher granularity of available data.

Equipment within the CUP is nearing the end of life based on the date it was placed in service. However, the light use of the equipment, especially chillers, combined with regular maintenance is expected to allow the equipment to extend beyond these time frames until approximately 2030 for most major systems.

Cooling (Chilled Water)

The existing CUP chiller plant has a capacity of 5,400 tons of cooling. The existing chilled water system consists of three 1,200-ton low pressure single stage absorption chillers, a 1,200-ton electric centrifugal chiller, and a 600-ton electric centrifugal chiller. The five chillers are in a parallel arrangement connected to the primary loop of a primary-secondary chilled water pumping system.

The CSB, MSB, RMB, HSIR West and East, and PSB buildings are served by 26-inch diameter secondary chilled water supply and return piping, which narrows in diameter as it extends to each served building.

Heating (Cogeneration / Steam)

The CUP cogeneration system includes two 54,000 lbs/hr heat recovery steam generators (HRSGs) that generate steam from the exhaust flues of two gas combustion cogeneration turbines (one HRSG per turbine). Low pressure steam is produced by one backpressure steam turbine generator (STG) and is used by the three existing absorption chillers for campus distribution. Two gas- and oil-fired boilers join the HRSGs to produce high pressure steam for use in the STG, distribution to campus facilities, and medium pressure steam production.

Steam is distributed through three networks to the campus for use in heating and process loads (e.g., sterilization). High pressure steam and low pressure steam are distributed to the majority of campus site buildings, while medium pressure steam is supplied to the clinical and medical buildings only. For three buildings, Kalmanovitz Library, Moffitt Hospital, and Long Hospital, high pressure steam is used to power an absorption chiller for cooling.

Electrical and Emergency Power

The CUP provides electrical service to 16 buildings on the Parnassus Heights campus site through a 12 kV distribution network. The total assumed connected loads associated with the 16 buildings served by the CUP is 27,276 kW. The term “total connected load” is the sum of the ratings of all equipment connected to the electrical system, regardless of their status of operation. The total assumed connected load is based on power per square foot (W/ft^2) dependent on the building’s use.

During a recent period of high electricity demand on the Parnassus Heights campus site that occurred during the last 2 weeks of October 2017, the average total demand was 9.69 MW, which was serviced by the CUP’s two gas-turbines and steam turbine, with the exception of 0.34 MW that was serviced by PG&E. The peak demand of 12.68 MW occurred on October 24, 2017 at 7:55 a.m., with over 2.82 MW being serviced by PG&E.

CUP Capacity

The CUP currently supplies a substantial majority (98 percent) of the electricity service to the Parnassus Heights campus site by means of gas and steam turbine generators. The CUP has two gas turbine generators, each rated 5,000 kW/5,938 kVA, and one steam turbine generator rated 3,750 kW/4688 kVA, all of which operate at 4,160 volts. The combined electricity generation capacity of the CUP is 13.75 MW. However, the steam turbine’s generation capacity is limited by the demand of steam on the campus site, typically generating below 1 MW. The CUP has proved itself to be a reliable source of electricity in the past 20 years and is expected to continue to do so past 2030 with proper maintenance. However, its generation capacity is already exceeded by the campus site’s power demands. A network of underground duct bank 12 kV feeders distribute the generated electricity throughout the campus.

The CUP has three emergency diesel generators (EDGs), each rated 2 MW/2.75 MVA at 12 kV. These generators are operated in parallel with each other and provide a combined 6 MW/7.5 MVA in the event of a CUP or PG&E outage. The EDGs are able to operate with the cogeneration plants when the campus site operates in “island mode,” i.e., disconnected from PG&E services. The CUP has an approximately five-day supply of diesel fuel to provide emergency backup to the campus in five 30,000-gallon tanks. The fuel tanks are located south of the CUP beneath Medical Center Way.

Currently, the emergency generators are not able to provide true emergency power, defined by CEC as a 10 second transition, to all of the campus site facilities that they serve. Most of the buildings on the campus site have their own emergency power sources. The only buildings on campus that rely on the CUP for 10 second transition emergency power are the School of Nursing, HSIR East and West, and MSB.

PG&E Capacity

The Parnassus Heights campus site receives PG&E electrical service from three different 12 kV distribution feeders along Parnassus Avenue. The campus site ties into these utility circuits via three spliced feeders, that exist in parallel with the CUP generation to meet the campus site electrical demand. In the event of a CUP co-generation outage, the PG&E service can pick up the demand without power interruption. The combined electrical capacity from the PG&E feeders is 22.5 MW, of which 15 MW is available at one time. The PG&E distribution circuits originate from two separate PG&E substations serving the area, including Mission Substation and Judah Substation. One of the three PG&E circuits serves as a backup or redundant service, and is not normally connected and supporting load at the campus site. PG&E can perform switching to connect that feeder to the Parnassus Heights campus site during abnormal conditions. All three PG&E feeders are capable of providing 7.5 MW/8.32 MVA each.

Demand loads are near the limit of generation capacity at the CUP during peak hour demand. While the option of using the existing third “spare” PG&E feeder to meet future demand is available, it would eliminate redundancy of electrical service to the campus that provides a degree of reliability. The spare feeder provides redundancy at the level of the CUP, but no redundancy exists in the PG&E distribution system. Use of the spare feeder would require UCSF to pay extra for “Special Facilities” and reserve capacity for a redundant feeder.

Total Available Capacity

The total available capacity from CUP generators and PG&E services available to the campus site 12 kV distribution system is 25.8 MW. As discussed above, this is because one of the PG&E circuits (7.5 MW) is a backup service, so only two PG&E circuits are available at once. The steam generator is limited by the amount of steam being produced for the campus site, and rarely generates beyond 1 MW of power. If the full output from the steam turbine and third PG&E service were available, the generation capacity would be over 36 MW. From October 2017 data, the peak campus demand is rarely above 13 MW. The existing generation and utility capacity are sufficient to serve the campus site at present, even if one of the CUP generators is unavailable.

Campus 12 kV Distribution System

The 12 kV feeders are served from switchgear located at the CUP. The distribution system is installed in underground duct banks. The switchgear can be connected together through a tiebreaker to ensure power is maintained.

4.5.2 Regulatory Framework

Federal

Federal policies and regulations set broad energy efficiency standards and incentives for consumer products, automobile and fuel efficiency, etc. Such requirements, as those listed below, tend to be applicable to the manufacturing sector and are not directly applicable to the CPHP. Nonetheless they are listed here for informational purposes.

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (NECPA) serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer products and includes a residential program for low-income weatherization assistance, grants and loan guarantees for energy conservation in schools and hospitals, and energy-efficiency standards for new construction. Initiatives in these areas continue today.

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government and sets more challenging goals than the National Energy Policy Act of 2005. The energy reduction and environmental performance requirements of Executive Order 13423 were expanded upon in Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance), and signed in 2009.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use, including by setting automobile efficiency standards, and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act.

Corporate Average Fuel Economy (CAFE) Standards

Established by the U.S. Congress in 1975, the CAFE standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and United States Environmental Protection Agency (U.S. EPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given to: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[2]

State

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established a state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures.

California Energy Action Plan

California's *2008 Energy Action Plan Update* updates the *2005 Energy Action Plan II,* which is the state's principal energy planning and policy document. The plan maintains the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are to promote energy efficiency, demand response (i.e., reducing customer energy usage during peak periods to address power system reliability and support the best use of energy infrastructure), and use of renewable power sources. To the extent that these strategies are unable to satisfy increasing energy and capacity needs, the plan supports clean and efficient fossil-fuel fired generation.

State of California Integrated Energy Policy

In 2002, the Legislature passed Senate Bill 1389, which required the CEC to develop an integrated energy plan biannually for electricity, natural gas, and transportation fuels, for the California Energy Report. SB 1389 requires the CEC to prepare a biennial Integrated Energy Policy Report (IEPR) that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code Section 25301[a]). The IEPR has replaced the Energy Action Plan as the chief program intended to provide a comprehensive statewide energy strategy to guide energy investments, energy-related regulatory efforts and greenhouse gas (GHG) reduction measures.

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[2] For more information on the Corporate Average Fuel Economy standards, refer to https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy.

The most recent update to the IEPR (2018) examines how California's energy system must be transformed to meet the state's 2030 GHG reduction goal, including implementation of SB 350 (De Leon, Chapter 547, Statues of 2015) to double the energy efficiency of existing buildings and SB 100's target of achieving 60 percent renewables in the electricity supply by 2030. The report also covers policies and trends in integrated resource planning, distributed energy resources, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), the natural gas outlook, and solutions to increase resiliency in the electricity sector. The key strategies identified in the most recent, 2018 IEPR Update, are summarized below (CEC, 2018b).

Title 24 - California Energy Efficiency Standards

The Energy Efficiency Standards for residential and nonresidential buildings specified in Title 24, Part 6 of the California Code of Regulations were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated approximately every three years to allow for consideration and possible incorporation of new energy-efficiency technologies and methods. The current standards became effective on January 1, 2020.

California Green Building Standards Code (CALGreen, or Title 24 Part 11)

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. Since 2011, the CALGreen Code is mandatory for all new residential and non-residential buildings constructed in the state. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality. The CALGreen Code was most recently updated in 2020, with new measures taking effect on January 1, 2020.

Renewables Portfolio Standard (RPS)

The State of California adopted standards to increase the percentage that retail sellers of electricity, including investor-owned utilities and community choice aggregators, must provide from renewable resources. The standards are referred to as the RPS. Qualifying renewables under the RPS include bioenergy such as biogas and biomass, small hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. The CPUC and the CEC jointly implement the RPS program. The CPUC's responsibilities include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving each investor-owned utility's renewable energy procurement plan; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy (CPUC, 2019).

Executive Orders S-14-08 and S-21-09

In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expanded the state's RPS to 33 percent renewable power by 2020. In September 2009, Governor

Schwarzenegger continued California's commitment to the RPS by signing Executive Order S-21-09, which directed the California Air Resources Board (CARB) under its AB 32 authority to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020.

SB 350 - Clean Energy and Pollution Reduction Act of 2015

SB 350, known as the Clean Energy and Pollution Reduction Act of 2015, was enacted on October 7, 2015, and provides a new set of objectives in clean energy, clean air, and pollution reduction by 2030. The objectives include the following:

- To increase from 33 percent to 50 percent by December 31, 2030, the procurement of the state's electricity from renewable sources.
- To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

On the same day that SB 100 was signed, Governor Brown signed Executive Order B-55-18 with a new statewide goal to achieve carbon neutrality (zero-net GHG emissions) by 2045 and to maintain net negative emissions thereafter.

Appliance Efficiency Regulations, California Code of Regulations Title 20

California's Appliance Efficiency Regulations (20 CCR Part 160-1608) contain standards for both federally regulated appliances and non-federally regulated appliances. The regulations are updated regularly to allow consideration of new energy efficiency technologies and methods. The current regulations were adopted by the CEC on November 18, 2009. The standards outlined in the regulations apply to appliances that are sold or offered for sale in California. More than 23 different categories of appliances are regulated, including refrigerators, freezers, water heaters, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings.

Transportation Energy

AB 1007 (Pavley)-Alternative Fuel Standards

Assembly Bill 1007 (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with the CARB and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80 percent reduction in GHG emissions associated with personal modes of transportation, even as California's population increases.

California Assembly Bill 1493 (AB 1493, Pavley)

In response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) emissions, AB 1493 (commonly referred to as CARB's Pavley regulations), enacted on July 22, 2002, requires CARB to set GHG emission standards for new passenger vehicles, light duty trucks, and other vehicles manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase I of the legislation established standards for model years 2009 through 2016 and Phase II established standards for model years 2017 through 2025 (CARB, 2017 and U.S. EPA, 2012). Refer to Section 4.7, *Greenhouse Gas Emissions*, of this EIR for additional details regarding this regulation.

Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products that started with a 0.25 percent reduction in 2011, and culminated in a 10 percent total reduction in 2020. In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20 percent by 2030.

Petroleum importers, refiners, and wholesalers can either develop their own low carbon fuel products or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

Executive Order B-16-12 - 2025 Goal for Zero Emission Vehicles

In March 2012, Governor Brown issued an executive order establishing a goal of 1.5 million ZEVs on California roads by 2025. In addition to the ZEV goal, Executive Order B-16-12 stipulated that by 2015 all major cities in California will have adequate infrastructure and be 'zero-emission vehicle ready' so that by 2020 the state will have established adequate infrastructure to support 1 million ZEVs; and that by 2050, virtually all personal transportation in the state will be based on ZEVs, and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

CARB's Advanced Clean Car Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012 and is closely associated with the Pavley regulations (CARB, 2017). The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the ZEV regulations to require manufactures to produce an increasing number of pure ZEV's (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEV) between 2018 and 2025.

CARB's Mobile Source Strategy

The Mobile Source Strategy (2016) includes an expansion of the Advanced Clean Cars program (which further increases the stringency of GHG emissions for all light-duty vehicles, and 4.2 million zero-emission and plug-in hybrid light-duty vehicles by 2030). It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for classes 3 through 7 "last mile" delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels. CARB's Mobile Source Strategy includes measures to reduce total light-duty vehicle miles travelled (VMT) by 15 percent compared to business-as-usual in 2050.

Executive Order B-48-18

On January 26, 2018, Governor Brown issued an executive order establishing a goal of 5 million ZEVs on California roads by 2030 and to spur the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 direct current fast chargers, and 200 hydrogen refueling stations by 2025.

University of California

University of California Sustainability Policy

The University of California's system-wide goal is to achieve carbon neutrality by 2025, using the following strategies:

- Annual two percent reduction in energy use;
- Cost-effective renewable energy installations; and
- System-wide purchasing pool for clean energy, biogas, and offsets by 2025.

Further policies include:

- The energy performance of new buildings must exceed Title 24 requirements by 20 percent;
- The energy performance of new buildings should exceed Title 24 requirements by 30 percent; and
- No new combustion is allowed for buildings and retrofits after June 30, 2019.

Healthcare buildings are subject to the same Title 24 requirements, and are also subject to the overall carbon neutrality goal.

UC Strategic Energy Plan

The UC Strategic Energy Plan (SEP) was prepared in 2008 for all UC campuses, to fulfill a goal of UC's Policy on Sustainable Practices to implement energy efficiency projects in existing buildings. The UCSF portion of the SEP analyzes energy use and GHG trends, and identifies potential energy efficiency retrofit projects at all buildings over 50,000 square feet at UCSF (primarily lighting, HVAC, commissioning and central plant measures). Energy savings, GHG emissions savings, and financial returns are estimated for hundreds of projects, which are grouped into Tier 1 (high priority) and Tier 2 (longer term planning) projects based on their energy savings and financial payback. The SEP project list is intended to be regularly updated by each campus to evaluate the feasibility of additional energy-saving measures.

University of California, San Francisco

UCSF has an aggressive sustainability program covering sustainability activities across the entire campus and medical center. Through its Office of Sustainability, UCSF has created work groups addressing sustainability in the following areas, some of which are directly related to energy consumption: Carbon Neutrality, Zero Waste, Water Conservation, Sustainable Food, Toxics Reduction, Green Procurement, Green Buildings, and Sustainable Operations.

UCSF Climate Action Plan and GHG Reduction Strategy

As part of implementing the UC *Sustainable Practices Policy*, UCSF developed a Climate Action Plan in 2009, a long-term strategy for voluntarily meeting the State of California's goal for reducing GHG emissions to 1990 levels by 2020, pursuant to AB 32. In addition, as part of the 2014 LRDP, UCSF developed a GHG Reduction Strategy (GHGRS) to provide streamlined analysis under CEQA for future development projects. Both of these documents were updated in 2017 to create a combined UCSF Climate Action Plan – Greenhouse Gas Reduction Strategy to reflect changes that have occurred since 2014 relative to the goals outlined in the UC *Sustainable Practices Policy* and the addition of new campus projects unforeseen at the time of LRDP adoption.

Specifically, the update includes strategies to meet UC goals to achieve climate neutrality from scope 1 and scope 2 emissions by 2025, and from scope 3 emissions by 2050. Additionally, the update recognizes updated GHG reduction targets of the 2017 update to the state's Climate Change Scoping Plan to achieve a 40 percent reduction in GHGs compared to 1990 levels by year 2030. The update also considers the completion of the Five Points Solar Park, a 60-megawatt solar power installation built to supply renewable energy to the University of California.

UCSF Transportation Demand Management

UCSF employs an aggressive Transportation Demand Management (TDM) program that includes an extensive shuttle system, among other alternative transportation opportunities. Based on UCSF's 2018 employee commute survey, approximately 80 percent of the campus faculty, staff and student population commutes by means other than driving alone. For the key features of UCSF's existing TDM program, refer to the UCSF Transportation Demand Management discussion in Section 4.7, *Greenhouse Gas Emissions*.

UCSF 2014 LRDP

Current development at UCSF is guided by the 2014 LRDP, which includes specific policies related to future program development and space needs at all UCSF campus sites, including the Parnassus Heights campus site. The 2014 LRDP identified campus-wide objectives related to energy:

Campus-Wide Objectives

4. Promote Environmental Sustainability

F. Facilitate growth in an environmentally responsible manner while reducing UCSF's greenhouse gas emissions in compliance with the UC *Sustainable Practices Policy* and the goals of Assembly Bill 32 (AB32), the California Global Warming Solutions Act.[3]

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principle

Sustainability

S1. Meet or exceed guidelines and standards in the University of California's *Sustainable Practices Policy* when planning and developing projects. Policy goals are categorized as follows: Green Building; Clean Energy; Climate Protection Practices (including greenhouse gas reduction); Sustainable Transportation; Sustainable Building Operations; Recycling and Waste Management; Environmentally Preferable Purchasing Practices; Sustainable Foodservices Practices.

4.5.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including three Initial Phase projects and Initial Phase improvements:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Approach to Analysis

This impact analysis evaluates the potential for the proposed CPHP to result in the wasteful use of energy or wasteful use of energy resources during project construction and operation, consistent with Public Resources Code 21100(b)(3). The impact analysis is based on Section 15126.2(b) and Appendix F of the State CEQA Guidelines. The analysis provides construction and operational energy use estimates for the proposed CPHP. This information is used to determine whether this energy use would be considered wasteful, inefficient, or unnecessary, taking into account available energy supplies and existing use patterns, the project's energy efficiency features, and compliance with applicable standards and policies aimed to reduce energy consumption, including the state's Title 24 Energy Efficiency Standards. Energy quantification details supporting the CPHP estimates presented in this section are based on the energy use assumptions and GHG emission estimates for the GHG emissions assessment presented in Section 4.7,

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[3] UCSF is required to develop a long-term strategy for voluntarily meeting the State of California's goal for reducing GHG emissions to 1990 levels by 2020, pursuant to the California Global Warming Solutions Act of 2006 (AB32).

Greenhouse Gas Emissions. The construction and operation of CPHP, including Initial Phase projects and improvements, are also assessed for consistency with *UC Sustainable Practices Policy* provisions that are designed to conserve and reduce energy consumption.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact ENE-1: Implementation of the CPHP would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. (Less than Significant)

CPHP

Construction Energy Use

Construction of individual projects developed under the proposed CPHP would result in the consumption of energy in the form of transportation fuels (i.e., gasoline and diesel fuel) from a variety of sources, including off-road construction equipment and on-road worker, vendor, and hauling vehicles. The level of energy consumption would fluctuate depending on the type of construction activities underway during any particular time period. Energy use would be higher during the period of construction involving the initial site clearance and earth-moving/grading, where the largest and most powerful equipment would be required to excavate, lift, and transport large volumes of soil and demolished materials (such as concrete slabs and asphalt) from the site. Gasoline and diesel fuel would be the primary energy source for vehicles driven by construction crews and to power the large trucks used to deliver and remove construction equipment, materials, and debris. Electricity would be used to transport (pump) water to the site, and to power automated hand tools and smaller types of construction machinery such as compressors for painting applications. Construction-related fuel consumption from activities over the entirety of the CPHP would include those described below for the Initial Phase projects, including the New Hospital, as well as for Future Phase development after 2030.

As discussed in Chapter 3, *Project Description*, CPHP Initial Phase projects, including the Irving Street Arrival, RAB, New Hospital, and initial Aldea Housing Densification projects, and other miscellaneous Initial Phase activities would be completed by 2030. Analysis provided below indicates that the Initial Phase projects and activities would result in the consumption of approximately 45,000 gallons per year of diesel fuel and approximately 6,000 gallons per year of gasoline.

Without details of specific construction schedules, sequencing, and overlap of the CPHP Future Phase projects, it is not possible to directly calculate the energy demand associated with the CPHP Future Phase. However, when considering the amount and type of CPHP Future Phase demolition and construction, and timeframe over which these activities would occur, it is expected that construction energy demand on average that would be experienced during the CPHP Future Phase may be comparable, but somewhat less than, that discussed for the CPHP Initial Phase projects, as the Future Phase demolition and construction activities would occur over a twenty-year period.

Operational Energy Use

CPHP operations would require long-term consumption of energy in the form of electricity, natural gas, gasoline, and diesel fuel. The electricity, natural gas, and water usage that would be required for operation of the proposed buildings have been estimated based on specific building area estimates, historical data, and CalEEMod default factors for water use, as discussed above. Natural gas consumption at the CUP would increase for the generation of electricity, and for the purposes of heating and cooling. Natural gas consumption for the full CPHP was estimated based on the UCSF Parnassus Heights Campus GHG inventory for the most recent inventory year (2018) and the proposed net increase in developed square footage. In addition, water use for buildings would require the consumption of electricity to supply, treat, and distribute potable water to the buildings and to treat wastewater generated in the buildings.

Mobile source fuel use associated with operation of the CPHP was estimated based on vehicle miles travelled (VMT) obtained from the transportation analysis for existing conditions (2019) and for conditions in 2050 under full buildout (existing plus CPHP). The VMT data were used to estimate electricity, natural gas, diesel fuel, and gasoline consumption volumes for both existing (2019) and existing plus CPHP (2050) conditions based on vehicle fleet-average fuel and electricity consumption rates (per mile) estimated using the EMFAC2017 emissions model. The increment of increased energy consumption under the CPHP was then determined by subtracting existing emissions from the resultant emissions under CPHP full buildout. The increase in mobile source electricity that would be associated with the CPHP is based on the expected increase in San Francisco's overall electric vehicle fleet in 2050. The increased electricity use associated with local and regional mobile sources generated by the CPHP would generally not be expected to occur at the Parnassus Heights campus site, but would be dispersed throughout the greater San Francisco area. While charging stations are currently available and would be available at the Parnassus Heights campus site under the CPHP, the bulk of long-term charging is expected to occur at the owners' residences. The annual energy use requirements estimated for full buildout operations of the CPHP relative to existing conditions are summarized in **Table 4.5-2** by energy use type.

Analysis of Factors Identified in CEQA Guidelines Appendix F

Appendix F of the CEQA Guidelines identifies factors relating to whether a project would result in the wasteful, inefficient, or unnecessary consumption of fuel or energy, and conversely whether the project would fail to incorporate renewable energy or energy efficiency measures into building design, equipment use, transportation or other project features. The Appendix F factors are addressed below and used as guidance to evaluate the energy impact of the CPHP relative to the identified significance criteria.

TABLE 4.5-2
CPHP FULL BUILDOUT OPERATIONAL ENERGY USE (ANNUAL)

Energy Use Type	Existing Conditions in 2019	CPHP Full Buildout (2050) Operational Usage	Net New Energy Use under CPHP
Electricity from PG&E Grid (MWh/year)			
Campus Facilities	2,609	4,200	1,591
Water Use	2,039	3,137	1,098
Mobile Sources	443	3,639	3,196
Total Electricity Use	**5,091**	**10,976**	**5,885**
Natural Gas (MMBtu/year)			
Central Utility Plant	1,023,258	1,647,446	624,188
Rest of Campus Facilities	12,579	20,253	7,674
Mobile Sources[1]	8,648	18,850	10,202
Total Natural Gas Use	**1,044,485**	**1,686,549**	**642,064**
Diesel (gallons/year)			
Mobile Sources	662,666	1,167,963	505,297
Generator Testing	19,157	30,800	11,643
Total Diesel Use	**681,823**	**1,198,763**	**516,940**
Gasoline (gallons/year)			
Mobile Sources	4,246,449	5,178,022	931,573
Total Gasoline Use	4,246,449	5,178,022	**931,573**

NOTES: kBtu = thousand British Thermal Unit; MWh = Megawatt-hour; and EV = electric vehicle.

[1] EMFAC2017 includes compressed natural gas in terms of diesel gallon equivalents. This is converted into Btu per the U.S. Department of Energy Alternative Fuel Data Center conversion: 1 DGE of CNG = 128,488 Btu. Available at: https://afdc.energy.gov/fuels/equivalency_methodology.html.

Appendix F.II.C.1: Energy Requirements and Energy Use Efficiencies

CEQA Guidelines Appendix F, Section II.C.1, includes the following impact guidance factor:

> *The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate the energy intensiveness of materials may be discussed.*

The energy inventories prepared for this evaluation include electricity and natural gas, and fuels used for construction and operation of the proposed CPHP. The estimated energy use levels are summarized below in Table 4.5-2 for the full buildout operational activities as well as the change from the existing conditions to full buildout; and the construction-phase energy use estimates for the three Initial Phase projects and activities are presented in Table 4.5-3. As shown in these tables, considerable amounts of electricity, natural gas, diesel, and gasoline would be consumed during the construction and operational phases of the CPHP. For the effects of the CPHP on the local and regional energy supplies and on the need for additional capacity, refer to the Appendix F.II.C.2 discussion, below.

In addition to direct construction- and operation-related energy consumption, indirect energy use would be involved to produce electricity, refine fuels, and make the materials and components used in construction, including the energy used for extraction of raw materials, manufacturing, and transportation. Energy intensiveness of electricity generation, fuel refining, and materials, also referred to as the energy "lifecycle," is not addressed in this analysis because the California Natural Resources Agency (CNRA) has indicated that lifecycle analyses are not required under CEQA (CNRA, 2009). The CNRA explained in the context of greenhouse gas emissions, that: (1) there exists no standard regulatory definition for lifecycle, and (2) even if a standard definition for lifecycle existed, the term might be interpreted to refer to emissions beyond those that could be considered 'indirect effects' as defined by CEQA Guidelines, and therefore, beyond what an EIR is required to estimate and mitigate (CNRA, 2009). This reasoning was reaffirmed in Section 15126.2(b) of the November 2018 CEQA Guidelines, which cautions that the analysis of energy impacts is subject to the rule of reason, and must focus on energy demand caused by the project, signaling that a full "lifecycle" analysis that would account for energy used in building materials and consumer projects will generally not be required (CNRA, 2018).

Nonetheless, recycling reduces indirect energy consumption associated with making materials and components, and reduces the energy used for extraction of raw materials, manufacturing, and transportation. California has a statewide goal of 75 percent waste diversion by 2020. The CPHP would require recycling containers to be located within public areas, and a waste diversion and recycling program could be implemented within the campus to divert all non-hazardous and non-health care related waste that can be safely recycled or composted. Operations of the CPHP would comply with the state goal by implementing waste diversion policies and infrastructure. With regard to the construction phases of the project, the CPHP would comply with the requirements of the CALGreen mandatory measures. These recycling efforts would reduce the effects of the project's indirect energy use.

Appendix F.II.C.2: Local and Regional Energy Supplies

CEQA Guidelines Appendix F, Section II.C.2, includes the following impact guidance factor:

> *The effects of the project on local and regional energy supplies and on requirements for additional capacity.*

As discussed above, the CPHP would result in the consumption of electricity, natural gas, gasoline, and diesel associated with mobile vehicle sources, building energy uses, operations of the CUP, emergency generator operations, and construction activities. The Parnassus Heights campus site is currently supplied both electricity and natural gas by PG&E. However, the majority of electricity used at the campus site is generated on-site at the CUP. PG&E has established contracts and commitments to ensure there is adequate electricity generation and natural gas capacity to meet its current and future energy loads. Total energy use requirements for the proposed CPHP at buildout, and the change from existing conditions to full buildout of CPHP operations, are presented in Table 4.5-2; and energy use during the construction of the proposed Initial Phase projects and activities are presented in Table 4.5-3.

Electricity

Annual average electricity consumption that would be required for the construction period would be substantially less than annual electricity consumption required for CPHP operations. Therefore, this discussion focuses on electricity demand that would occur during full buildout of CPHP operations. To put the CPHP's operational electricity requirements in context, in 2018 the total generated electricity for California was 285,488 GWh of electricity (CEC, 2019a), of which consumers in San Francisco used 5,602 GWh (CEC, 2019g). The CEC estimates that state-wide electricity demand will increase to 339,160 GWh in 2030 based on an average annual mid-energy demand growth rate of 1.27 percent (CEC, 2018c). As shown in Table 4.5-2, the CPHP's anticipated long-term operational increase in PG&E-delivered electricity usage from 5,091 megawatt-hours (MWh) per year for existing conditions in 2019 to 10,976 MWh per year by full buildout of the CPHP in 2050, reflects an increase of 5,885 MWh per year in electricity usage. This represents 0.002 percent of the total 2018 state-wide electricity usage and 0.11 percent of San Francisco electricity usage.

As mentioned in the environmental setting, demand loads can approach the limit of generation capacity at the CUP during peak demand periods; therefore, unless the CUP is upgraded to a higher nameplate capacity, the campus buildout under the CPHP may be required to rely on the PG&E electricity grid for its increased electricity demand. Given that the PG&E grid currently only supplies approximately two percent of the campus electrical demand and is capable of supplying all the demand in the event that the CUP goes offline, it appears that the PG&E feeders have adequate capacity to serve the increased electrical demand. However, an assessment of the available capacity of the PG&E distribution feeders would be required to determine if the PG&E facilities would be adequate to serve the increased demand. If required, PG&E's spare feeder could be used; however, that may require UCSF to install a redundant feeder for reserve capacity (UCSF, 2019). PG&E's service planning and substation teams would review the anticipated proposed electricity load to ensure that there is adequate capacity at the electric substations that would serve the CPHP to support the increase in the proposed load.

Based on a comparison to the state-wide and San Francisco annual energy demand and the projected demand growth rate, the CPHP-related increase in electricity consumption would not cause adverse effects on local and regional energy supplies or require additional generation capacity beyond the state-wide planned increase to accommodate projected energy demand growth. In addition, the CPHP's operational electricity demand estimates conservatively exclude the benefits of LEED Gold design that would occur pursuant to the UC *Policy on Sustainable Practices* that requires all new buildings to achieve a LEED "Silver" certification at a minimum, as well as due to future revisions to Title 24 energy standards, which would further reduce electricity demand.

The transition toward electric power sources for on-road vehicles, including the installation of additional electric vehicle charging stations, would result in an increase in the calculated total electricity usage, as shown in Table 4.5-2, above; however, the associated increased electricity use associated with mobile sources would not be expected to occur at the Parnassus Heights campus site, but would be dispersed throughout the greater San Francisco area and would not significantly impact overall electricity supply or infrastructure. While charging stations are currently available and would be available at the Parnassus Heights campus site under the CPHP, the bulk of long-term charging is expected to occur at the owners' residences.

Natural Gas

There would be no natural gas consumption associated with CPHP construction activities. The CPHP's annual operational natural gas consumption is estimated to increase by 642,064 MMBtu from 1,044,485 MMBtu for the existing conditions in 2019 to 1,686,549 MMBtu at full buildout in 2050 (see Table 4.5-2). The majority of this increase would be associated with the potential increased consumption at the CUP. In comparison, state-wide natural gas consumption in 2018 was 1,264,000,000 MMBtu and San Francisco natural gas demand was 22,800,000 MMBtu in 2018 (CEC, 2019b). The CPHP's increase in natural gas consumption would account for approximately 0.05 percent of the 2018 statewide annual consumption and approximately 2.82 percent of the 2018 San Francisco-wide consumption. It is projected that California natural gas demand will decrease at an annual rate of 1.1 percent to 2026 due to continued implementation of renewable generation projects and the penetration of energy efficient products in the state. After 2026, California natural gas demand is projected to increase due to population growth and associated demand (CEC, 2015).

An assessment of the available capacity of the existing natural gas transmission line that serves the CUP would be required to ensure that the existing PG&E facilities would be adequate to serve the increased demand. Additionally, UCSF's Greenhouse Gas Reduction Strategy identifies measures that improve efficiency of existing buildings, while new buildings are required to surpass Title 24 energy efficiency standards and at a minimum, attain LEED silver certification or equivalent. These measures would reduce consumption of natural gas by improving building insulation and by requiring the flow rate and consumption at individual zones to be monitored in order to identify unusual consumption points, promote conservation, and in turn reduce energy costs as well as minimize the adverse environmental impact., etc.

Transportation Fuels

Regarding CPHP-related fuel consumption, it is estimated that off-road construction equipment and on-road vehicles would consume an annual average of approximately 44,952 gallons diesel fuel per year and on-road worker vehicles would consume an annual average of approximately 6,003 gallons per year of gasoline during the construction phases of the proposed Initial Phase CPHP projects between 2020 and 2030 (see Table 4.5-3). Without details of specific construction schedules, sequencing, and overlap of the CPHP Future Phase projects, it is not possible to directly calculate the energy demand associated with the CPHP Future Phase. However, it is expected that construction energy demand that would be experienced during the CPHP Future Phase would be comparable, but somewhat less than that estimated for the CPHP Initial Phase projects as the Future Phase demolition and construction activities would occur over a twenty-year period. During operations, it is estimated that the net annual increase in consumption of diesel fuel for full buildout of the CPHP would be approximately 516,940 gallons per year and the net annual increase in consumption of gasoline would be approximately 931,573 gallons per year (see Table 4.5-2). These annual average diesel use amounts for construction and operations are equivalent to approximately 0.5 percent and 5.2 percent, respectively, of the diesel fuel sold in San Francisco, and the gasoline use amounts for construction and operations are equivalent to less than 0.01 percent and approximately 0.8 percent, respectively, of the total gasoline fuel sold in San Francisco (see “Transportation Fuels” in Section 4.5.1, *Environmental Setting*).

The overall energy use requirements would not be substantial relative to the total sales of transportation fuels in San Francisco. In addition, implementation of Mitigation Measure AIR-1b, *Best Management Practices for Controlling Particulate Emissions during Construction*, would help avoid wasteful or inefficient use of energy during construction by requiring that equipment be well maintained, and requiring that idling be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes in accordance with the Title 13, Section 2485, of the California Code of Regulations. Also, vehicle use associated with operations of the CPHP would be reduced pursuant to UCSF’s aggressive TDM program that includes an extensive shuttle system, among other alternative transportation opportunities.

The CPHP would not require additional power generation plants, natural gas transmission facilities, or fuel refineries to be constructed. Through use of renewable energy, energy efficiency standards, and electric vehicle charging infrastructure, the CPHP would minimize impacts on the local and regional energy supply. While charging stations are currently available and would be available at the Parnassus campus site under the CPHP, the bulk of long-term charging is expected to occur at the owners’ residences.

Appendix F.II.C.3: Peak and Base Period Demands

CEQA Guidelines Appendix F, Section II.C.3, includes the following impact guidance factor:

> *The effects of the project on peak and base period demands for electricity and other forms of energy.*

Peak period electrical demand is the short period of time during which electrical power is needed when electricity is in highest demand. Base period electrical load is the minimum amount of electrical demand needed over a 24-hour time period. Wasteful, inefficient, or unnecessary consumption or use of energy during the peak period of electrical demand has greater potential to cause adverse environmental effects compared to during the base period because of the higher demand during the peak period. The CPHP would not have a substantial impact on the peak and base period demands for electricity or other forms of energy. The CPHP’s base energy consumption compared to regional and statewide energy consumption is discussed above. Further details and reasoning on the peak demand are described below.

In 2018, California’s peak grid demand was 46,424 MW. On the same day, PG&E reached a maximum demand of 19,245 MW (Cal ISO, 2019). In comparison, the CPHP’s maximum demand is expected to be at most 22 MW, most of which would be served by electricity generated at the CUP, but would be supplemented by direct-feed PG&E electricity. This estimate conservatively excludes the benefits of LEED and improvements in demand response due to future updates to the Title 24 energy standards, which would further reduce peak demand through its performance standards that are based on the time dependent valuation of energy, which uses the value of the electricity or natural gas used at every hour of the year to incentivize load shifting off of the peak use periods. In addition, the mixed-use nature of the CPHP naturally allows for a balanced energy load, as not all uses would have maximum occupancy at the same time of day.

Overall, the CPHP peak demand represents approximately 0.11 percent of PG&E's peak demand and would have a relatively minor effect on PG&E's system-wide peak demands.

Appendix F.II.C.5: Energy Resources

CEQA Guidelines Appendix F, Section II.C.5, includes the following impact guidance factor:

> *The effects of the project on energy resources.*

The CPHP's energy use, including electricity, natural gas, gasoline, and diesel consumption, would primarily be associated with construction activities, vehicle travel, building operations, and emergency generator testing and maintenance. Total energy use requirements are shown in Table 4.5-3 for construction activities and in Table 4.5-2 for the change from existing conditions to full buildout operations. Refer to the Appendix F.II.C.2 and F.II.C.3 discussions, above, for the effects that the CPHP would have on energy resources. The CPHP's use of energy would not have a substantial adverse effect on statewide or regional energy resources relative to wasteful, inefficient, or unnecessary use of energy.

Appendix F.II.C.6: Transportation Energy Use

CEQA Guidelines Appendix F, Section II.C.6, includes the following impact guidance factor:

> *The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.*

The UCSF's transportation energy use requirements in terms of gasoline and diesel quantities for construction of the Initial Phase project and operation of the CPHP are presented in Tables 4.5-3 and 4.5-2, respectively. The quantification of VMT associated with project operations, which is used to quantify the total operational transportation-related energy use requirements, is discussed in detail under *Operational Energy Use*, above. Pursuant to UCSF's TDM program, the CPHP would include reductions in transportation and associated energy usage at full buildout.

In addition, as discussed above, implementation of Mitigation Measure AIR-1b, *Best Management Practices for Controlling Particulate Emissions during Construction*, would help avoid wasteful or inefficient use of energy during construction by requiring that equipment be well maintained, and requiring that idling be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes in accordance with the Title 13, Section 2485, of the California Code of Regulations. The CPHP would also be well positioned to take advantage of the many public transit options in the vicinity of UCSF. The 16th Street Bay Area Rapid Transit (BART) station is located near the campus and UCSF has a wide array of shuttle bus services that serve the campus. In general, vehicle trip-generating developments near public transit facilities result in reduced energy use by projects compared to projects not in the vicinity of such facilities. According to the California Air Pollution Control Officers Association (CAPCOA, 2010), "[l]ocating a project with high density near transit will facilitate the use of transit by people traveling to or from the Project site. The use of transit results in a mode shift and therefore reduced VMT."

Impact Conclusion Summary

Based on the above analysis, the CPHP would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of fuel or energy.

Mitigation: None required.

Irving Street Arrival, RAB and Initial Aldea Housing Densification

The energy evaluation for the Initial Phase projects applies the same methodology that was applied to the assessment of the energy effects of the CPHP. Estimated energy resource use during the construction of the Initial Phase projects is presented below in **Table 4.5-3**.

TABLE 4.5-3
CONSTRUCTION ENERGY RESOURCE USE FOR THE INITIAL PHASE PROJECTS

Energy Use Type	Unit of Measure	Project Construction Usage
Diesel		
On-road vehicles	gallons/project	95,786
Off-road equipment	gallons/project	241,351
Total Diesel Use	gallons/project	337,137
Annual Average Diesel Use[1]	**gallons/year**	**44,952**
Gasoline		
On-road vehicles[2]	gallons/project	45,024
Total Gasoline Use	gallons/project	45,024
Annual Average Gasoline Use[1]	**gallons/year**	**6,003**

NOTES:

[1] Annual averages are estimated by dividing the total energy use by the expected duration of 7.5 years of construction activities associated with Irving Street Arrival, RAB, and Initial Aldea Housing Densification projects.

SOURCE: ESA, 2019, Energy Consumption Calculations for the proposed UCSF CPHP.

As described above for the CPHP, implementation of Mitigation Measure AIR-1b, *Best Management Practices for Controlling Particulate Emissions during Construction*, would help avoid wasteful or inefficient use of energy during construction of the Initial Phase projects by requiring that equipment be well maintained, and requiring that idling be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes in accordance with the Title 13, Section 2485, of the California Code of Regulations.

With regard to long-term operational energy use requirements, it is estimated that the Initial Phase projects would result in an increase in transportation fuels consumption of approximately 12 percent compared to the existing 2018 consumption, and onsite consumption of electricity, natural gas, and diesel would increase by only two percent relative to the existing 2018 consumption. These increases in energy demand would not be expected to cause a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of fuel or energy. Impacts would be less than significant.

Mitigation: None required.

Initial Phase Improvements

As described in Chapter 3, *Project Description*, other Initial Phase activities would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous neighborhood investment improvements in the public realm. Construction and operation of these improvements would incrementally contribute to the Initial Phase energy resources required. However, for the same reasons discussed above for the Irving Street Arrival, RAB and Initial Aldea Housing Densification projects, construction and operational energy use would similarly not be expected to cause a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of fuel or energy. Impacts would be less than significant.

Mitigation: None required.

Impact ENE-2: Implementation of the CPHP would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (Less than Significant)

CPHP; and Irving Street Arrival, RAB and Initial Aldea Housing Densification and Initial Phase Improvements

All relevant *UC Sustainable Practices Policy* provisions that are designed to conserve and reduce energy consumption would be implemented. In addition, the CPHP and Initial Phase projects and activities would address UCSF's achievement of goals set forth in the adopted Carbon Neutrality Initiative (CNI), which has goals more stringent than the statewide target of achieving 80 percent below 1990 emission levels by 2050. The goals also have the effect of reducing overall energy usage. The CPHP, including the three Initial Phase projects and other activities, would continue UCSF's substantial energy conservation efforts at the Parnassus Heights campus site by reducing energy demand through investments in achieving deep energy efficiency of the buildings and facilities on campus. Individual projects under the proposed CPHP would be required to comply with the *UC Policy on Sustainable Practices*, which requires new construction of facilities to meet a minimum standard of LEED-NC Silver and strive for LEED-NC Gold when possible and requires 20 percent better energy performance than Title 24 (and strives to achieve 30 percent). New development under the proposed CPHP is not expected to conflict with the University's policy.

Mitigation: None required.

Cumulative Impacts

Impact C-ENE-1: The CPHP, combined with cumulative development in the Parnassus Heights campus site vicinity and citywide, would not result in significant cumulative energy impacts. (Less than Significant)

Geographic Context

The geographic scope of potential cumulative effects with respect to energy resources includes PG&E's electric grid and natural gas transmission system that would serve the CPHP, the energy systems at the Parnassus Heights campus site that would serve the CPHP, the area from which transportation fuels would be provided (for this EIR, publicly available fuel sources in the vicinity of the CPHP site), and the cumulative projects discussed in Section 4.0.

Cumulative Impact and CPHP Contribution

Given UCSF's implementation of energy reduction measures within its Greenhouse Gas Reduction Strategy that would serve to improve efficiency of existing buildings, require new buildings to surpass Title 24 energy efficiency standards and, at a minimum, attain LEED silver certification or equivalent, the CPHP would not contribute to a significant cumulative impact related to the use of large amounts of fuel or energy in a wasteful or inefficient manner and the cumulative impact would be less than significant.

Given the relatively small percentage of the CPHP's other fuel and energy uses compared to existing fuel and energy use in the region, the CPHP's less-than-significant incremental impacts related to the use of other forms of fuel or energy in a wasteful or inefficient manner would not be expected to combine with the incremental impacts of other projects to cause an adverse cumulative impact. The operational electricity requirements of the CPHP would not be cumulatively considerable and the estimated consumption rates would not be substantial compared to the 2018 citywide consumption.

Project-related transportation fuel impacts could overlap with the transportation needs (including fuel needs) of previously approved past projects, as well as other present or future projects that would occur during the CPHP's construction and operation. However, there is no apparent significant cumulative condition to which the CPHP could contribute. In addition, implementation of Mitigation Measure AIR-1b, *Best Management Practices for Controlling Particulate Emissions during Construction*, would help avoid wasteful or inefficient use of energy during construction by requiring that equipment be well maintained, and requiring that idling be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Vehicle use associated with operations of the CPHP would be reduced due to implementation of UCSF's TDM program, which would include reductions in transportation and associated energy usage at full buildout. Therefore, the project's incremental impact associated with its energy use would be less than significant.

Cumulative projects could require increased peak and base energy demands and, therefore, could cause or contribute to adverse cumulative conditions. However, the cumulative projects would be expected to have relatively small energy requirements compared to the CPHP, and would be subject to the same applicable federal, state, and local energy efficiency requirements (e.g., the State's Title 24 requirements) that would be required of the CPHP, which would result in efficient energy use during their construction and operation. Adverse CPHP-related impacts to electricity demand would be negligible, and would not significantly impact peak or base power demands during construction, operation, or maintenance. Accordingly, the CPHP's incremental contribution to cumulative peak and base demands would not be cumulatively considerable.

Conclusion

Based on the above analysis, the potential for the CPHP to result in a cumulatively considerable environmental impact due to wasteful, inefficient, or unnecessary consumption of fuel or energy would be less than significant.

Mitigation: None required.

4.5.4 References

California Air Pollution Control Officers Association (CAPCOA), 2010. Quantifying Greenhouse Gas Mitigation Measures. August. http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf. Accessed June 6, 2019.

California Air Resources Board (CARB), 2017. Clean Car Standards—Pavley, Assembly Bill 1493, last reviewed January 11, 2017. http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed March 2019.

California Energy Commission (CEC), 2015. Draft Staff Report: 2015 Natural Gas Outlook. November 3, 2017. http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-03/TN206501_20151103T100153_Draft_Staff_Report_2015_Natural_Gas_Outlook.pdf. Accessed June 3, 2019.

CEC, 2017, Transportation Energy Demand Forecast, 2018-2030. Publication Number: CEC-200-2017-010. December 4, 2017. Available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-IEPR-05. Accessed March 25, 2019.

CEC, 2018a. Revised Transportation Energy Demand Forecast 2018-2030. 17-IEPR-05. https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-IEPR-05. Docketed April 19, 2018. Accessed November 1, 2019.

CEC, 2018b. 2018 Integrated Energy Policy Report Update. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2018-integrated-energy-policy-report-update. Accessed May 18, 2020.

CEC, 2018c. California Energy Demand 2018-2030 Revised Forecast. https://efiling.energy.ca.gov/URLRedirectPage.aspx?TN=TN222287_20180120T141708_The_California_Energy_Demand_20182030_Revised_Forecast.pdf. Docketed January 22, 2018. Accessed December 23, 2019.

CEC, 2019a. 2018 Total System Electric Generation in Gigwatt Hours. https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html. Accessed November 1, 2019.

CEC, 2019b. Gas Consumption by County. http://www.ecdms.energy.ca.gov/gasbycounty.aspx. Accessed November 1, 2019.

CEC, 2019c. Supply and Demand of Natural Gas in California. https://ww2.energy.ca.gov/almanac/naturalgas_data/overview.html. Accessed November 1, 2019.

CEC, 2019d. Oil Supply Sources to California Refineries, Available at: https://ww2.energy.ca.gov/almanac/petroleum_data/statistics/crude_oil_receipts.html. Accessed November 19, 2019.

CEC, 2019e. 2018 California Annual Retail Fuel Outlet Report Results (CEC-A15), Energy Assessment Division, July 1, 2019. http://www.ecdms.energy.ca.gov/elecbycounty.aspx. Accessed December 2, 2019.

CEC, 2019f. California's Oil Refineries, https://ww2.energy.ca.gov/almanac/petroleum_data/refineries.html. Accessed December 2, 2019.

CEC, 2019g. Electricity Consumption by County. http://www.ecdms.energy.ca.gov/elecbycounty.aspx. Accessed December 3, 2019.

California Independent System Operator (Cal ISO), 2019. 2018-2019 Transmission Plan, March 29, 2019. http://www.caiso.com/Documents/ISO_BoardApproved-2018-2019_Transmission_Plan.pdf. Accessed December 24, 2019.

California Natural Resources Agency (CNRA), 2009. Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97, pp. 71 and 72, December 2009. http://resources.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf. Accessed May 31, 2019.

CNRA, 2018. Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines, pg 41. http://resources.ca.gov/ceqa/docs/2018_CEQA_Final_Statement_of%20Reasons_111218.pdf. November 2018. Accessed May 2019.

California Public Utilities Commission (CPUC), 2019. RPS Program Overview, 2018. http://www.cpuc.ca.gov/RPS_Overview. Accessed March 2019.

California State Board of Equalization (CBE), 2019. Net Taxable Gasoline Gallons, Including Aviation Gasoline. https://www.cdtfa.ca.gov/taxes-and-fees/MVF-10-Year-Report.pdf. Accessed March 25, 2019.

The EPIC Energy Blog (EPIC), 2018. Update on Electric Vehicle CPUC Decision and Other Related Legislation, Legislative Update. Posted on June 2018. https://epicenergyblog.com/2018/06/01/update-on-electric-vehicle-cpuc-decision-and-other-related-legislation/. Accessed on December 3, 2019.

U.S. Energy Information Administration (EIA), 2018. Motor Gasoline Consumption, Price, and Expenditure Estimates 2018. Accessed May 18, 2020.

EIA, 2019a. California State Profile and Energy Estimates, updated October 17, 2019. http://www.eia.gov/state/data.cfm?sid=CA#ConsumptionExpenditures. Accessed October 31, 2019.

EIA, 2019b. California Energy Consumption by End-Use Sector, 2018. Last Updated: January 16, 2020. https://www.eia.gov/state/?sid=CA#tabs-2. Accessed June 11, 2020.

EIA, 2019c. Transportation Sector Energy Consumption Estimates 2017. https://www.eia.gov/state/seds/sep_sum/html/pdf/sum_btu_tra.pdf. Accessed December 2, 2019.

EIA, 2019d. Gasoline Explained, Use of Gasoline, https://www.eia.gov/energyexplained/gasoline/use-of-gasoline.php. Accessed December 2, 2019.

EIA, 2019e. California State Profile and Energy Estimates, https://www.eia.gov/state/analysis.php?sid=CA. Accessed December 2, 2019.

Pacific Gas & Electric (PG&E), 2018a. 2018 Corporate Responsibility and Sustainability Report. www.pgecorp.com/sustainability. Accessed June, 2019.

PG&E, 2018b. PG&E Overview, http://www.pgecorp.com/corp_responsibility/reports/2018/bu01_pge_overview.html. Accessed December 2019.

PG&E, 2018c. 2017 Joint Annual Report to Shareholders, https://s1.q4cdn.com/880135780/files/doc_financials/2017/annual/2017-Annual-Report-Final.pdf. Accessed February 5, 2020.

PG&E, 2019a. 2018 Joint Annual Report to Shareholders, filed with the Securities and Exchange Commission on February 28, 2019.

PG&E, 2019b. Learn about the PG&E Natural Gas System, https://www.pge.com/en_US/safety/how-the-system-works/natural-gas-system-overview/natural-gas-system-overview.page. Accessed December 2019.

PG&E, 2020. PG&E's Electric System, https://www.pge.com/includes/docs/pdfs/shared/edusafety/systemworks/electric/pge_electric_system.pdf. Accessed February 5, 2020.

Reuters, 2020. Profile: Pacific Gas and Electric Co. (PCG_pa.A), https://in.reuters.com/finance/stocks/company-profile/PCG_pa.A. Accessed February 5, 2020.

United States Environmental Protection Agency (U.S. EPA), 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017 through 2025 Cars and Light Trucks. August 2012. https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EZ7C.PDF?Dockey=P100EZ7C.PDF. Accessed March 2019.

University of California, San Francisco (UCSF), 2019. UCSF Parnassus Heights Utility Master Plan, October 1, 2019.

4.6 Geology and Soils

This section describes and evaluates the potential for the construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts to geology and soils conditions and seismic hazards, including paleontological resources. The section contains a description of the existing regional and local conditions of the campus site and the surrounding areas as it pertains to geology and soils; includes a summary of the University, federal, State, and local regulations related to geology and soils and seismic hazards; identifies criteria used to determine impact significance, and provides an analysis of the potential impacts related to geology and soils associated with the implementation of the CPHP as well as identifies feasible mitigation measures that could mitigate any potentially significant impacts.

The section is based on a review of published maps and data from the United States Geological Survey, California Geological Survey, University of California Museum of Paleontology, and also site-specific geotechnical investigations of the landslide hazards on Mount Sutro.

4.6.1 Environmental Setting

Regional Setting

The campus site is located within the Coast Ranges geomorphic province which is characterized by marine sedimentary and volcanic rocks that form the Franciscan Assemblage occurring in northwest-trending ridges and valleys (CGS 2002).[1] The present physiography and geology of the Coast Ranges are the result of deformation and faulting associated with the tectonic boundary between the North American plate and the Pacific plate. Plate boundary movements are largely concentrated along the well-known fault zones, which in the area include the San Andreas, Hayward, and Calaveras as well as other lesser-order faults. These faults run in a general northwest/southeast alignment and have helped form the subparallel northwest trending mountain ranges (typically ranging in elevation from 2,000 to 4,000 feet above sea level and occasionally 6,000 feet) and valley. The Coast Ranges province is bounded on the west by the Pacific Ocean and the east by the Great Valley province where the bedrock units of the Coast Ranges dip below the thick alluvium sequences of that province.

The Coast Ranges are composed of thick sedimentary strata that are heavily deformed by tectonic forces. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The northern Coast Ranges are dominated by irregular, knobby, landslide-topography of the Franciscan Assemblage also referred to as the Franciscan Complex. In several areas, Franciscan rocks are overlain by volcanic cones and flows of the Quien Sabe, Sonoma, and Clear Lake volcanic fields. The dominant feature of the province, the San Andreas fault zone, is more than 600 miles long, extending from Point Arena to the Gulf of California.

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[1] The Franciscan Assemblage is a name applied to the various rock units that form the bulk of the Coast Range Mountains.

Campus Site Geology

The campus site is largely situated on the north-facing slope of Mount Sutro, in the west-central portion of San Francisco. Ridges and isolated hills, including Mount Sutro, are composed of exposed basement rocks of the Franciscan Complex (Rutherford & Chekene, 2019). The Franciscan Complex is a highly deformed sequence of little to highly metamorphosed rocks representing former oceanic crust, pelagic (deep-water) deposits, and turbidites (sediment or rock deposited by turbidity currents). Mount Sutro and the surrounding region are underlain by a depositional environment that includes pillow basalt, radiolarian chert, and sandstone and shale (Blake and others, 2000, as cited in Rutherford & Chekene, 2019). The predominant bedrock units underlying Mount Sutro is radiolarian chert, but meta-sandstone, shale and greenstone (meta-volcanic rock) are also present, particularly along the lower slopes of the mountain. Chert exposed in road cuts typically is moderately weathered and strongly fractured. Much of the rock is friable, with strong rock present where less fracturing has occurred. The bedrock in this area is typically overlain by a thin mantle of weathered slope debris, which generally consists of a very well graded mixture of angular rock fragments in a matrix of sand, silt, and clay.

Fault Rupture

Background

The campus site lies within a region of California that contains many active and potentially active faults, as shown in **Figure 4.6-1**. Fault rupture is defined as the displacement that occurs along the surface of a fault during an earthquake. Based on criteria established by the California Geological Survey (CGS), faults are classified as either active, potentially active, or inactive.[2] Faults are considered active when they have shown evidence of movement within the past 11,000 years (i.e., Holocene epoch). Potentially active faults are those that have shown evidence of movement between 11,000 and 1.6 million years ago (Quaternary age). Faults showing no evidence of surface displacement within the last 1.6 million years are considered inactive.

The Alquist-Priolo Earthquake Fault Zoning Act (formerly known as the Alquist-Priolo Special Studies Zones Act) established state policy to identify active faults and determine a boundary zone on either side of a known fault trace, called the Alquist-Priolo Earthquake Fault Zone. The delineated width of an Alquist-Priolo Earthquake Fault Zone is based on the location precision, complexity, or regional significance of the fault and can be between 200 and 500 feet in width on either side of the fault trace. If a project site lies within a designated Alquist-Priolo Earthquake Fault Zone, a geologic fault rupture investigation must be performed to demonstrate that a proposed building site is not threatened by surface displacement from the fault, before development permits may be issued.

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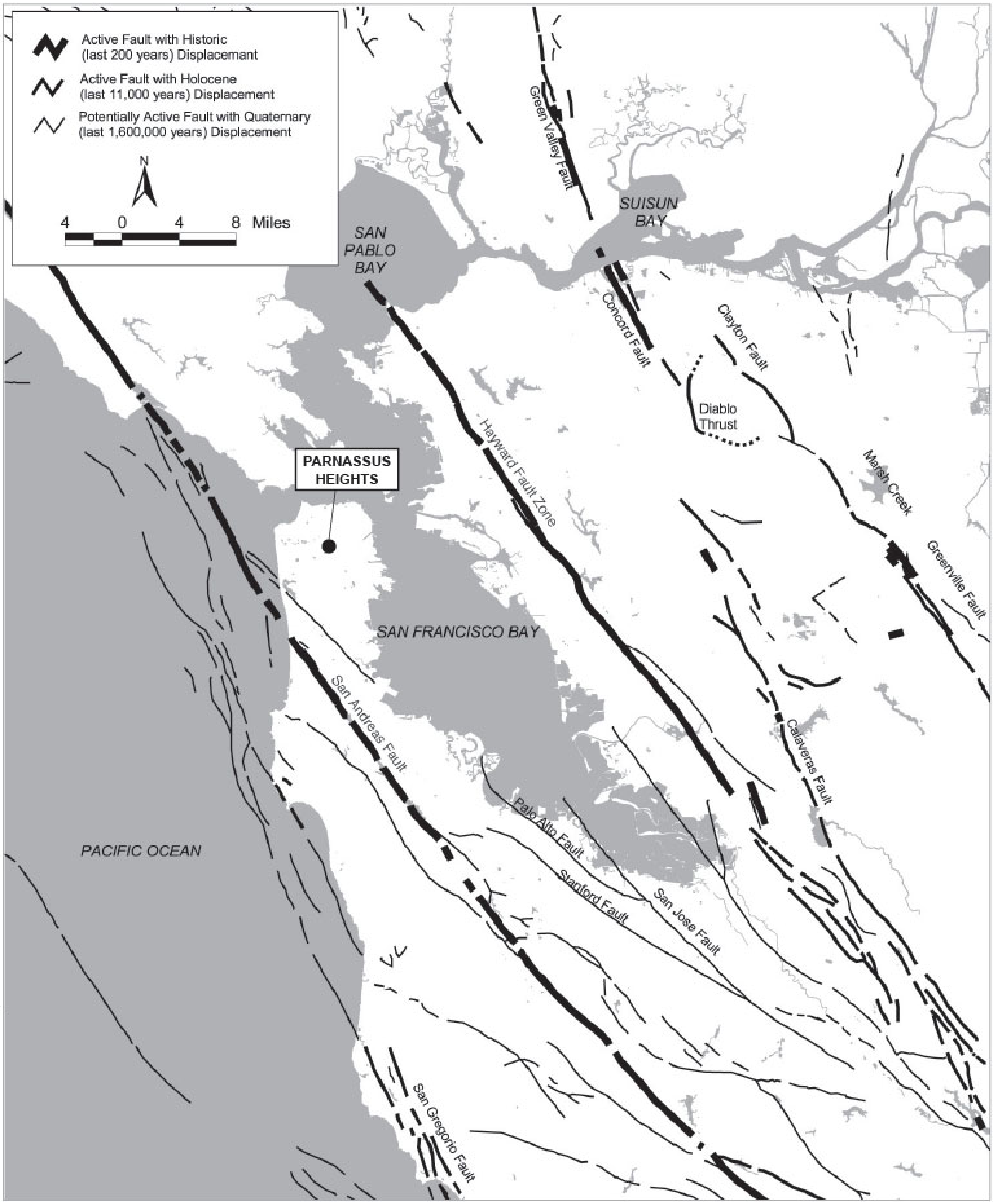
[2] The CGS was formerly called the California Division of Mines and Geology (CDMG).



SOURCE: Jennings, 2010

Figure 4.6-1
Active and Potentially Active Bay Area Earthquake Faults

Campus Site

Based on the available geologic data, no active or potentially active faults with the potential to cause surface fault rupture are known to be located beneath or in the vicinity of the Parnassus Heights campus site. The closest and most notable active fault to the campus site with surface rupture potential is the San Andreas Fault Zone, located approximately 4 miles to the west. The campus site is not located within or near a designated Alquist-Priolo Earthquake Fault Zone.

Ground Shaking

As indicated in Figure 4.6-1, and described in **Table 4.6-1**, the campus site is located within 50 miles of many active or potentially active faults that are capable of producing very strong ground shaking. The San Andreas Fault Zone is located offshore in its closest location to the campus site but is still considered to have a high potential for being the source of a substantive earthquake event. The famous magnitude 1906 (M 8.25) earthquake on this fault caused major damage in San Francisco and surrounding areas. Other significant historic earthquakes that have occurred relatively near the campus site include the 1989 Loma Prieta Earthquake (M7.1) on a remote segment of the San Andreas Fault Zone; the 1836 and 1868 (M 4.5) on the Hayward fault; and the 2000 West Napa Earthquake (M5.2) on the West Napa Fault Zone.

TABLE 4.6-1
ACTIVE FAULTS IN THE VICINITY OF SAN FRANCISCO

Fault	Distance and Direction from Campus Site[a]	Recency of Movement	Fault Classification[b]	Historical Seismicity, Richter Magnitude[c]	Maximum Moment[d] Magnitude Earthquake
San Andreas	4 miles west	Historic (1906; 1989 ruptures) Holocene	Active	M 7.1, 1989 M 8.25, 1906 M 7.0, 1838 Many <M 6	7.9
Hayward	10 miles east	Historic (1836; 1868 ruptures) Holocene	Active	M 6.8, 1868 Many <M 4.5	7.1
San Gregorio–Seal Cove	6 miles southwest	Holocene – Late Quaternary	Active	Many M 3–M 6.4	7.3
Rodgers Creek	25 miles northeast	Historic Holocene	Active	M 6.7, 1898 M 5.6, M 5.7, 1969	7.0
Calaveras	25 miles east	Historic (1861 rupture) Holocene	Active	M 5.6–M 6.4, 1861 M 4–M 4.5 swarms 1970, 1990	6.8
Concord–Green Valley	25 miles east	Historic (1955) Holocene	Active	Historic active creep	6.9
West Napa	32 miles northeast	Historic (2014)	Active	M 6.0 2014 M 5.0 2000	6.5

NOTES:

[a] Fault distance is referenced from the fault's closest point to the county of San Francisco (excluding Treasure Island). Actual fault distance from specific project locations may therefore vary from those listed.

[b] Faults are considered active when they have shown evidence of movement within the past 11,000 years (i.e., Holocene epoch). Potentially active faults are those that have shown evidence of movement between 11,000 and 1.6 million years ago (Quaternary age). Faults showing no evidence of surface displacement within the last 1.6 million years are considered inactive.

[c] Richter magnitude (M) and year for recent and/or large events. The Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave.

[d] Moment magnitude provides a physically meaningful measure of the size of an earthquake [California Geological Survey (CGS) 2002]. The maximum moment magnitude earthquake, derived from the joint CGS/USGS Probabilistic Seismic Hazard Assessment for the State of California, 1996. CGS OFR 96-08 and USGS OFR 96-706).

SOURCES: Hart (2007); Jennings (2010); and Peterson et al. (1996)

The effects of seismic shaking are dependent on the distance from the epicenter, the causative fault, and the underlying geotechnical characteristics of the onsite geology. The U.S. Geological Survey (USGS) Working Group on California Earthquake Probabilities (also known as UCERF3) evaluated the likelihood of one or more earthquakes of moment magnitude 6.7 or higher occurring in the San Francisco Bay Area.[3] The result of the most recent evaluation indicated a 72 percent likelihood that such an earthquake event will occur in the Bay Area sometime in the next 30 years, beginning 2014 (USGS 2015). Within this 72 percent probability, the Hayward-Rodgers Creek and Calaveras fault systems are the two most likely fault systems to cause the event (USGS WG02, 2015).

The secondary effects of seismic shaking potentially include subsidence, liquefaction, settlement, landslides, and lateral spreading, described below.

Landslides and Slope Stability

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or dynamic (i.e., earthquake) forces. A slope failure is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Exposed rock slopes undergo rockfalls, rockslides, or rock avalanches, while soil slopes experience shallow soil slides, rapid debris flows, and deep-seated rotational slides. Landslides may occur on slopes of 15 percent or less; however, the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges.

There have been numerous studies on landslides and slope stability for the campus site. In 1999, Rutherford & Chekene performed a campus-wide slope stability evaluation based on a review of topographical maps, boundary surveys, aerial photographs, geologic reports and maps, and field reconnaissance of the campus. Mapped locations of previous slope failures, including those identified since the 1999 evaluation, are depicted in **Figure 4.6-2**.

A city-wide 2000 study by Wilson *et al* determined that several landslides were present on Mount Sutro. Since this analysis was not based on the collection of site specific data, the study produced a table of susceptible geologic units, rather than a hazard map (Rutherford & Chekene, 2019). In 2006, Rutherford & Chekene performed a substantive slope stability risk assessment for the Parnassus Heights campus site (Rutherford & Chekene, 2006) that utilized historical borehole logs and unpublished reports on file at Rutherford & Chekene, most notably a series of short reports by Marliave (1948a, b, c; 1951) and Woodward Lundgren & Associates (1974a, 1974b, and 1974c), as cited therein. The historical unpublished reports indicated that slope failures coincided with the construction of certain roads and new buildings on the campus site in the late 1800s. Notably, however, there were no reports of slope failure following the 1906 earthquake. The first historical reference to a slope failure on Mount Sutro was in a 1948 report by Marliave,

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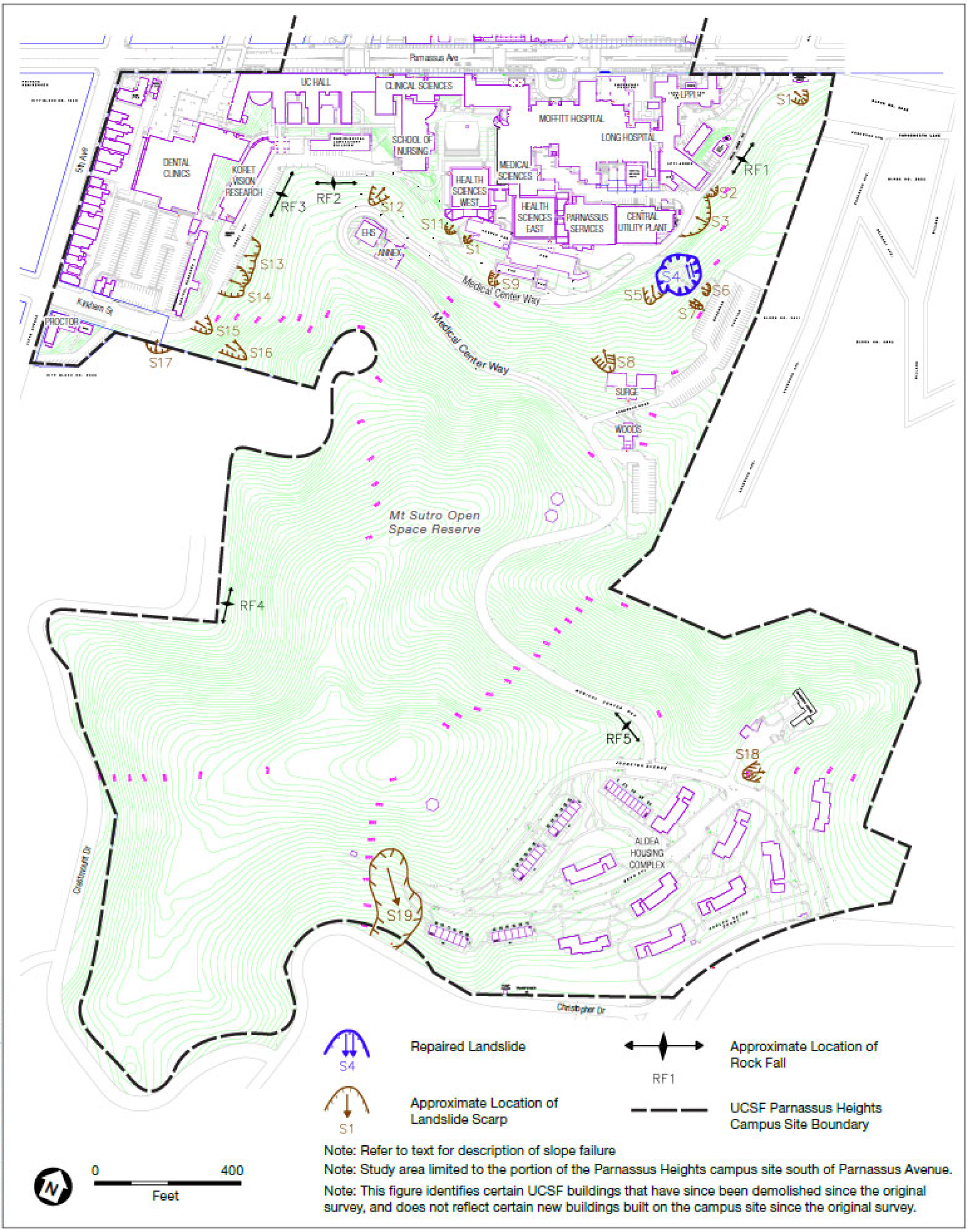
[3] Moment magnitude is related to the physical size of a fault rupture and movement across a fault. The Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave. Moment magnitude provides a physically meaningful measure of the size of a faulting event [California Geological Survey (CGS) 2002].



Note: Refer to text for description of slope failure

Note: Study area limited to the portion of the Parnassus Heights campus site south of Parnassus Avenue.

Note: This figure identifies certain UCSF buildings that have since been demolished since the original survey, and does not reflect certain new buildings built on the campus site since the original survey.

SFO/D190291.00 - UCSF CPHP EIR2. Graphics/Illustrator

SOURCE: Rutherford + Chekene, 2019

Figure 4.6-2
Approximate Location of Previous Slope Failure at Parnassus Heights Campus Site

ESA

which alluded to a failure along the then cut slope to the southeast of the Langley Porter Clinic (now known as the Langley Porter Psychiatric Institute, or LPPI) (Rutherford & Chekene, 2019).

A 2006 risk assessment prepared by Rutherford & Chekene included a probabilistic slope analysis using dry and wet seismic conditions. Topographic data was collected using LiDAR to develop a digital elevation model, which then served as a basis to prepare slope hazard maps.[4] The 2006 risk assessment determined that there was a high probability for the occurrence of seismic-induced landslides under the rare combination of high pore pressure distribution in the affected earth materials occurring at the same time as an earthquake (Rutherford & Chekene, 2006).

A slope stability risk assessment prepared by Rutherford & Chekene in 2019 reviewed the 2006 study and compared the data used in 2006 with updated LiDAR data[5] from 2018, previous slope hazard mapping, past slope improvement projects, and field reconnaissance conducted in 2018. From this data comparison, Rutherford & Chekene qualitatively assessed the slope hazards in terms of size and frequency of potential movement events, and also evaluated the relative risk of potential adverse effects to roads and facilities from slope movement. The findings of the 2019 investigation determined that, in general, slope failures in the form of rockfall types are expected to occur in the study area much more frequently than larger, and potentially more damaging, hillside landslides. The 2019 risk assessment concluded there was no evidence of large-scale slope movements during the 2006-2018 period; that there was evidence of small movements in some cut slopes, especially steep vegetated slopes; and that water and trees were the primary agents of observed small movements (Rutherford & Chekene, 2019).

Subsidence

Subsidence is characterized as a sinking of ground surface relative to surrounding areas and can occur when underlying soils fail to support new loadings, such as structures or placement of additional fill materials. Subsidence in areas of thick alluvial deposits can also be associated with regional fluid (groundwater and/or petroleum) withdrawal, peat oxidation, or hydrocompaction. Subsidence can result in the development of ground cracks and damage to subsurface vaults, pipelines, and other improvements.

Subsidence can occur from immediate settlement, consolidation, shrinkage of expansive soil (see discussion below), and/or liquefaction (discussed below). Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and is typically complete after placement of the final load. Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period of time and is

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[4] LiDAR stands for *Light Detection and Ranging,* a remote sensing method using light in the form of a pulsed laser to measure surface topography. These light pulses, combined with other data recorded by the airborne system, generate precise, three-dimensional information about the shape of the ground surface and its characteristics. The LiDAR data used by Rutherford & Chekene 2006 was collected and compiled by Haneberg Geoscience, GeoInsite, and Rutherford & Chekene in 2005.

[5] The updated LiDAR data was obtained on September 9, 2018 by Quantum Spatial and included as an appendix in the Rutherford & Chekene 2019 report.

followed by secondary compression, which is a continued change in void ratio under the continued application of the load. Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in properties over an area, which is referred to as differential settlement. Commonplace in redevelopment of older structures, the presence of undocumented fill materials makes them suspect to adequately support new improvements unless site preparations, such as removal of artificial fill and recompaction or replacement with engineered fill is conducted.

Liquefaction

Liquefaction is a form of earthquake-induced ground failure that occurs when relatively shallow, loose, granular, water-saturated soils behave similarly to a liquid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: (1) shallow (50 feet bgs or less) groundwater; (2) low-density non-cohesive (granular) soils; and (3) high-intensity ground motion. Liquefaction is typified by a buildup of pore-water pressure in the affected soil layer to a point where a total loss of inherent shear strength occurs, thus causing the soil to behave as a liquid. Saturated, loose to medium-dense, near-surface non-cohesive soils and cohesive soils exhibit the highest liquefaction potential. Liquefaction usually results in horizontal and vertical movement of soils from lateral spreading (i.e., lateral displacement of gently sloping ground) of liquefied materials and post-earthquake settlement of liquefied materials. The effects of liquefaction on level ground include potential seismic settlement, sand boils, ground oscillation, and bearing capacity failures below structures.

Hazard maps compiled by ABAG based on CGS data depict liquefaction hazards for areas throughout the Bay Area, in categories ranging from very low to very high liquefaction susceptibility. According to these maps, the majority of the developed core of Parnassus Heights campus site is located in an area considered to have a moderate potential for liquefaction, while the rest of the campus site is an area designated with a low potential for liquefaction (ABAG, 2019). The campus site is not located within any Seismic Hazard Zones for potential liquefaction (ABAG, 2019).

Seismically Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, uncompacted, and variable sandy sediments above the water table) due to the rearrangement of soil particles during prolonged ground shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different amounts). Areas underlain by artificial fill can be particularly susceptible to this type of settlement if not addressed adequately in geotechnical site preparations (e.g., recompaction of site soils or replacement with engineered fill).

Expansive Soils

Expansive soils are soils that possess what is described as “shrink-swell” behavior because they include clay minerals characterized by their ability to undergo significant volume change (shrink or swell) due to variation in moisture content. Typically, soils that exhibit expansive characteristics comprise the upper five feet of the surface. Sandy soils are generally not expansive, while clayey soils have a higher potential to be expansive. Changes in soil moisture content can result from rainfall, irrigation, pipeline leakage, perched groundwater, drought, or other factors. Volumetric change of expansive soils may cause excessive cracking and heaving of structures with shallow foundations, concrete slabs-on-grade, or pavements supported on these materials over long periods of cyclical changes in volume. Structural damage is usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

Soil Erosion

Erosion is the wearing-away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind, and underground water. Excessive soil erosion can eventually lead to damage of building foundations and roadways. In general, areas that are most susceptible to erosion are those that would be exposed during the construction phase when earthwork activities disturb soils and require stockpiling. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, asphalt, or landscaping. However, changes in drainage patterns can also cause areas to be susceptible to the effects of erosion.

Paleontological Setting

As indicated above, the campus site is mostly composed of radiolarian chert of the Franciscan Complex with exposures of meta-sandstone, shale, greenstone also present (Rutherford & Chekene, 2019). Geologic mapping by Blake et al. (2000) confirms the presence of these rocks types and indicates the presence of some Quaternary-age Dune Sand and Undifferentiated surficial deposits (Blake et al., 2000a), which overlie the Franciscan chert. The Franciscan Complex is mainly composed of Mesozoic-age, low to- high grade metamorphosed rocks; and while a majority of the Franciscan Complex is highly deformed from past faulting and metamorphism, it also contains unmetamorphosed sedimentary rocks. The sedimentary rocks of the Franciscan Complex have produced several marine invertebrate fossils (UCMP, 2019); however, marine invertebrate fossils are generally common and well-documented and would generally not be considered a unique paleontological resource. There have been two previously recorded vertebrate fossil localities from the Franciscan Complex; one in Franciscan chert from San Joaquin County and one in Franciscan limestone from San Luis Obispo County (UCMP, 2019). Due to the nature of a majority of the Franciscan Complex (i.e., being too highly metamorphosed to have preserved fossil remains) and the general lack of vertebrate fossil localities, this formation is considered to have low paleontological sensitivity. Based on the University of California Museum of Paleontology (UCMP) Locality Search online database search, no known paleontological resources were identified within the campus site.

4.6.2 Regulatory Setting

State

Alquist-Priolo Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Section 2621) was enacted by the State of California in 1972 to address the hazard of surface faulting to structures for human occupancy. The primary purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to prevent the construction of buildings intended for human occupancy on the surface traces of active faults. The Alquist-Priolo Earthquake Fault Zoning Act is also intended to provide the citizens with increased safety and to minimize the loss of life during and immediately following earthquakes by facilitating seismic retrofitting to strengthen buildings against ground shaking.

The Alquist-Priolo Earthquake Fault Zoning Act requires the State Geologist to establish regulatory “earthquake fault zones” around the surface traces of active faults and to issue appropriate maps to assist cities and counties in planning, zoning, and building regulation functions. The Alquist-Priolo Earthquake Fault Zoning Act and its regulations are presented in CGS Special Publication (SP) 42, Fault-Rupture Hazard Zones in California (Hart 2007). As discussed previously, the campus site is not located within an Alquist-Priolo Fault Rupture Hazard Zone and, therefore, would be not be subject to the requirements of the Alquist-Priolo Earthquake Fault Zoning Act.

Seismic Hazards Mapping Act

In order to address the effects of strong ground shaking, liquefaction, landslides, and other ground failures due to seismic events, the State of California passed the Seismic Hazards Mapping Act of 1990 (Public Resources Code Section 2690-2699). Under the Seismic Hazards Mapping Act, the State Geologist is required to delineate “seismic hazard zones.” There are areas of the Mount Sutro Open Space Reserve (Reserve) within the campus site that are mapped as being susceptible to seismically-induced landslide hazards. Improvements located within a seismically-induced landslide hazard area are required to adhere to CGS Special Publication (SP) 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California.

California Building Code

The 2019 California Building Code (CBC), Title 24 of the California Code of Regulations, is a compilation of building standards, including seismic safety standards, for new buildings. CBC standards are based on building standards that have been adopted by State agencies without change from a national model code; building standards based on a national model code that have been changed to address particular California conditions; and building standards authorized by the California legislature but not covered by the national model code. The CBC applies to all occupancies in California, except where stricter standards have been adopted by local agencies. The CBC is published on a triennial basis, and supplements and errata can be issued throughout the cycle. The 2019 CBC became effective on January 1, 2020.

Office of Statewide Health Planning and Development

UCSF's hospitals fall under the jurisdiction of the *Alfred E. Alquist Hospital Facilities Seismic Safety Act (Alquist Seismic Safety Act*) and Senate Bill 1953 (SB 1953), an amendment of the *Alquist Seismic Safety Act*, passed in 1994. The *Alquist Seismic Safety Act* and subsequent bill require all hospital facilities to comply with seismic safety building standards as defined by the Office of Statewide Health Planning and Development (OSHPD).

OSHPD is responsible for carrying out the provisions of SB 1953. A department of the California Health and Human Services Agency, OSHPD's primary goals include assessing California's healthcare infrastructure, managing the healthcare workforce, providing healthcare outcomes information to the public, insuring healthcare facilities development loans, and operating the Hospital Seismic Safety Program, which enforces building seismic safety. OSHPD's Hospital Building Safety Board further advises the director of the OSHPD on the administration of SB 1953 and acts as a board of appeals for hospital seismic safety issues.

SB 1953 was adopted in part so that, after a major earthquake or disaster, hospital facilities can continue to provide care to their current occupants as well as any new patients that might arrive after the event.

All of UCSF's hospital buildings must meet certain OSHPD standards. If a building is to remain classified as an acute-care hospital facility[6] and thus, be compliant with SB 1953, the owner of the building must complete seismic evaluations in accordance with the Seismic Evaluation Procedures as specified in SB 1953; prepare a comprehensive plan and schedule for how each building will become compliant with SB 1953, within three years of the evaluation; and submit the report and a compliance plan to OSHPD for review and approval (California State Senate, 1994).

In the process of compliance, OSHPD and a hospital building owner evaluate both nonstructural components (communications, medical gas, etc.) and structural components (actual building structure) of acute-care hospital facilities that might sustain damage during a seismic event. Each acute-care facility is assigned a Structural Performance Category (SPC) rating and a Nonstructural Performance Category (NPC) rating. After the evaluation process, OSHPD either confirms or changes the rating. The hospital then receives guidance from OSHPD on how upgrades can continue (OSHPD, 2019a). **Table 4.6-2** presents OSHPD SPC and NPC ratings and descriptions for acute-care hospital facilities.

In general, low scores mean hospital building systems are not prepared for a disaster, and high scores mean hospital building systems are prepared. If the building is not in compliance with SB 1953 based on the scores, seismic retrofit regulations (Division III-R) are applied to the building to help in its retrofit. Replacing older hospitals with modern hospitals is intended to increase the score of UCSF's medical facilities. A number of laws have amended SB 1953 since passing, including AB 2190, SB90, SB 306, and SB 499, which have mainly adjusted timelines for facilities to complete the requirements.

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[6] An acute-care hospital provides emergency services and general medical and surgical treatment for acute disorders rather than long-term residential care for chronic illness.

TABLE 4.6-2
OSHPD STRUCTURAL PERFORMANCE CATEGORIES AND NONSTRUCTURAL PERFORMANCE CATEGORIES FOR ACUTE-CARE HOSPITAL FACILITIES

Performance Categories	OSHPD Performance Categories Description
Structural Performance Category (SPC)	
SPC-0	No rating was reported to OSHPD.
SPC-1	These buildings have a high risk of collapse in an earthquake, and are a significant safety hazard to the public. These buildings had to be retrofitted, replaced, or removed from acute care classification by 2020.
SPC-2	These buildings are in compliance with pre-1973 California Building Code, but are not in compliance with the Alquist Hospital Facilities Seismic Safety Act. These buildings do not pose a significant safety hazard, but might not be functional after a strong earthquake. These buildings must be compliant with the Alquist Act by January 1, 2030 or removed from acute care classification.
SPC-3	These buildings are compliant with the Alquist Hospital Facilities Seismic Safety Act. These buildings might sustain structural damage and might not be able to provide care after an event, but they have been constructed or reconstructed under OSHPD building permits. They can be used to January 1, 2030 and beyond.
SPC-4	These buildings are compliant with the Alquist Hospital Facilities Seismic Safety Act. These buildings may sustain structural damage and might not be able to provide care after an event, but they have been constructed or reconstructed under OSHPD building permits. They can be used to January 1, 2030 and beyond.
SPC-5	These buildings are compliant with the Alquist Hospital Facilities Seismic Safety Act. These buildings are reasonably capable of providing care after an event, and they have been constructed or reconstructed under OSHPD building permits. They can be used to January 1, 2030 and beyond.
Nonstructural Performance Category (NPC)	
NPC-0	No rating was reported to OSHPD.
NPC-1	Basic systems used in life safety and care are not properly anchored, and will not survive an earthquake event. Communications, emergency power, medical gas, and fire alarm systems must be anchored by January 1, 2002.
NPC-2	Communications systems, emergency power supplies, bulk medical gas systems, fire alarm systems, and emergency lighting and exit signs are properly anchored.
NPC-3	Basic systems used in life safety and care are properly anchored in critical areas of the hospital. If there is not significant structural damage, basic emergency medical care should be able to continue.
NPC-4	All architectural, mechanical, electrical systems, components and equipment, and hospital equipment are properly anchored. If there is not significant structural damage and problems with water and sewer systems, basic emergency medical care should be able to continue.
NPC-5	All basic systems used in life safety and care are properly anchored. In addition, the building has water and wastewater holding tanks (integrated into the plumbing system) and an on-site fuel supply that will last through 72 hours of acute care operations. Radiological service can also continue.

SOURCE: OSHPD, 2019a

For the Parnassus Heights campus site, all applicable buildings have an SPC-3 or higher rating with the exception of Moffitt Hospital, which has an SPC-2 rating, while all the buildings have an NPC-3 rating.

Public Resources Code Section 5097.5 and Section 30244

State requirements for paleontological resource management are included in PRC Section 5097.5 and Section 30244. Section 5097.5 prohibits the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency. It requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (State, county, city, district) lands. Section 30244 requires that, where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

University of California

University of California Policy on Seismic Safety

The University of California's *Seismic Safety Policy* originally developed in 1975 and last updated January 9, 2017[7] requires that all buildings and facilities where University operations and activities occur be acquired, built, maintained, and rehabilitated to an acceptable level of earthquake safety. The purpose of this policy is to use current earthquake engineering practices and University resources to provide an acceptable level of earthquake safety for students, employees, and the public who occupy University buildings and other facilities, at all locations of University operations and activities to the maximum extent feasible. This policy addresses a number of topics, including but not limited to: surveying of existing buildings and facilities; interim use plans; a program for abatement of seismic hazards in buildings and other facilities; seismic rehabilitation standards; post-earthquake response; standards for new construction and renovation, and seismic peer review.

UCSF 2014 LRDP

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP campus-wide objectives relate to geology and soils:

Campus-Wide Objectives

3. **Ensure UCSF's Facilities are Seismically Safe**
    A. Ensure inpatient facilities meet state seismic requirements, as set forth in the *Alquist Seismic Safety Act* (SB 1953), by constructing and maintaining modern, seismically safe hospitals and facilities that will remain operational in the event of a major earthquake.

    B. Plan new facilities and implement improvements to comply with UC's Seismic Safety Policy, to ensure a seismically safe environment for UCSF patients, visitors, physicians and staff.

    C. Designate buildings for renovation, demolition, and replacement as warranted.

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[7] This policy is periodically updated and the most recent version can be found at https://policy.ucop.edu/doc/3100156/.

4.6.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42;

   ii. Strong seismic ground shaking;

   iii. Seismic-related ground failure, including liquefaction; or

   iv. Landslides.

b) Result in substantial soil erosion or the loss of topsoil;

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water; or

f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

g) Exceed the LRDP EIR standard of significance by exposing people to structural hazards in an existing building rated Level V (Poor), or Level VI (Very Poor), under the University's seismic performance rating system, or substantial nonstructural hazards.

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topics for the reasons described below:

- ***Fault rupture.*** The campus site is not located within or immediately adjacent to any known active fault, and therefore, the potential for fault rupture to adversely affect the site is very low.

- ***Expansive soils.*** Expansive soils are commonly addressed in required geotechnical evaluations of onsite geotechnical hazards, and past geotechnical investigations at the campus site has not revealed the presence of expansive soils. Furthermore, the University requires all new facilities to adhere to the current CBC, which includes detailed provisions to ensure that the design of new facilities is appropriate to site soil conditions, including requirements to address expansive and otherwise problematic soils. With adherence to the CBC, impacts related to site soil conditions – including but not limited to expansive soils, if any are present – would be less than significant.

- ***Septic systems.*** The proposed CPHP does not include any activities that would require the utilization of septic systems or alternative wastewater disposal systems. No impact would occur.
- ***LDRP EIR standard of significance.*** None of the structures planned for renovation under the proposed CPHP are rated Level V (Poor), or Level VI (Very Poor) under the University's seismic performance rating system for structural hazards. No impact would occur.

Approach to Analysis

Geology and Soils

The potential for significant impacts related to geology and soils from the construction and operation of the campus facilities developed under the proposed CPHP was determined based on a thorough review of the existing conditions informed by data compiled by USGS, CGS, ABAG and site specific slope stability studies prepared by Rutherford & Chekene (2006 and 2019) for the campus site.

In 2015, the California Supreme Court held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project [*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369.]. However, if a project exacerbates a condition in the existing environment, the lead agency is required to analyze the impact of that exacerbated condition on the environment, which may include future occupants of the project. As stated in *Ballona Wetlands Land Trust v. City of Los Angeles* [(2011) 201 Cal.App.4th 455, 473]: "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project." While the potential for increased exposure of people or structures to risks associated with seismic occurrences and location of people or structures on unstable geologic units as a result of the location of CPHP activities are discussed in this section for informational purposes, the effects of the preexisting hazards on users of the proposed development under the CPHP are not environmental impacts under CEQA.

Paleontological Resources

The Society of Vertebrate Paleontology (SVP) has established standard guidelines that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological resource-specific Laws, Ordinances, Regulations, and Standards (LORS) accept and use the professional standards set forth by the SVP.

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important.[8,9]

Based on the significance definitions of the SVP,[10] all identifiable vertebrate fossils are considered to have significant scientific value because vertebrate fossils are relatively uncommon, and only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

In its “Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources,” the SVP[11] defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential**.** For geologic units with high potential, full-time monitoring is generally recommended during any Project-related ground disturbance. For geologic units with low potential, protection or salvage efforts will not generally be required. For geologic units with undetermined potential, field surveys by a qualified vertebrate paleontologist should be conducted to specifically determine the paleontologic potential of the rock units present within the study area.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

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[8] Scott, E. and K. Springer, 2003. CEQA and Fossil Preservation in California. The Environmental Monitor.

[9] Scott, E., K. Springer, and J. C. Sagebiel, 2004. Vertebrate paleontology in the Mojave Desert: the continuing importance of “follow-through” in preserving paleontologic resources. In The human journey and ancient life in California’s deserts: Proceedings from the 2001 Millennium Conference. Ridgecrest: Maturango Museum Publication 15: 65-70.

[10] Society of Vertebrate Paleontology, 1995. Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources: standard guidelines. Society of Vertebrate Paleontology News Bulletin 163:22-27.

[11] Society of Vertebrate Paleontology. 2010. Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources. Available: http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx Accessed January 3, 2017.

Impact Analysis

Impact GEO-1: New development under the CPHP would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. (Less than Significant)

CPHP

As discussed above in Section 4.6.1, *Environmental Setting*, the Bay Area region is considered seismically active and will likely experience a substantive regional earthquake within the operational life of the CPHP. And while implementation of the CPHP would not cause or exacerbate seismic ground shaking hazards, there is a potential for strong to very strong intensity ground shaking to occur within the campus site over the course of the CPHP that would be associated with such an earthquake. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the magnitude, the duration of shaking, and the nature of the geologic materials on which the project components would be constructed. Intense ground shaking and high ground accelerations would affect the entire area and the primary and secondary effects of ground shaking could damage structural foundations, distort or break infrastructure, and place people at risk of injury or death. Implementation of the CPHP would result in new building development and rehabilitation of certain older structures, and an increase in population at the campus site, including on-site residents, as well as daily faculty, staff, patients and visitors, being subject to considerable seismic ground shaking from a substantive earthquake.

As discussed in Section 4.6.2, *Regulatory Setting*, above, in compliance with the CBC all structural improvements and association improvements that would occur under the CPHP would be required to prepare and implement appropriate design-level geotechnical evaluations prior to final design and construction. The final design-level geotechnical evaluation would include any necessary recommendations for site preparations (e.g., compaction requirements, engineered fill criteria, and moisture limitations) and/or foundation systems necessary to reduce seismic-related hazards to less than significant levels consistent with the applicable seismic design criteria of the CBC. Implementing the regulatory requirements of the CBC, and ensuring that buildings, structures, and related improvements are constructed in compliance with the law is the responsibility of the state licensed project engineers and building officials. The CBC describes required standards for the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. The standards include earthquake design requirements that determine the seismic design category and then describe the structural design requirements. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC while applying standard engineering practice and the appropriate standard of care for anticipated seismic events. The California Professional Engineers Act (Building and Professions Code Sections 6700–6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provide the basis for regulating and enforcing engineering practice in California.

In addition*,* construction of proposed facilities considered essential services buildings would require design, site preparation and foundation construction in accordance with the most current version of the seismic standards of SB 1953 and the Office of Statewide Health Planning and Development (OSHPD) requirements for proposed hospital facilities. Geotechnical review of the foundation design of new hospital facilities would be required to adhere to the guidelines presented in *California Geological Survey – Note 48, Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings*. Renovation of existing buildings also would be required to adhere to all applicable seismic requirements as contained in the most recent version of the CBC and UC *Seismic Safety Policy*.

With compliance with the regulatory requirements and the implementation of geotechnical design recommendations consistent with seismic design criteria, impacts relative to seismic shaking associated with earthquakes that may occur over the course of the CPHP would be less than significant.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As with all projects under the CPHP, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification would involve new construction and in some cases, redevelopment (e.g., the Irving Street Arrival improvements would occur within existing Medical Building 1 and on the exterior of the Medical Building 1 and Millberry Union parking garages; and the Aldea Housing Densification may reuse existing building foundations). As described in Chapter 3, *Project Description*, the Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. As with all development under the CPHP, these Initial Phase projects and Initial Phase improvements could be subject to substantive ground shaking associated with an earthquake on a nearby fault. Similar to above, Initial Phase projects and improvements at the campus site would all be subject to existing regulatory requirements including the CBC, and the UC Seismic Safety Policy, and as applicable, SB 1953 and OSHPD seismic requirements. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to the City’s building department permit review process to ensure compliance with City building code provisions.

With compliance with the regulatory requirements and the implementation of geotechnical design recommendations, impacts relative to seismic shaking for the Initial Phase projects and Initial Phase improvements would be less than significant.

Mitigation: None required.

Impact GEO-2: New development under the CPHP would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic related ground failure including liquefaction. (Less than Significant)

CPHP

As discussed in Section 4.6.1, *Environmental Setting*, the campus site is not located within a Seismic Hazard Zone for liquefaction susceptibility (ABAG, 2019). According to mapping compiled by ABAG based on CGS data, the majority of the developed campus core in the northern portion of the campus site is located in an area mapped as having a moderate potential for liquefaction. If present and not addressed adequately during site preparations for new construction, liquefiable subsurface materials can cause ground failures and differential settlement that can lead to substantive structural damage. The presence of liquefiable materials can only be definitively determined through a site-specific geotechnical investigation of underlying materials. As discussed above, all proposed new development under the CPHP would be required to adhere to seismic design criteria of the CBC and to be consistent with the UC *Seismic Safety Policy*. In addition, structures considered essential services buildings such as the new hospital are required to be designed and constructed in accordance with the most current version of the seismic standards of SB 1953 and the Office of Statewide Health Planning and Development (OSHPD) requirements for proposed hospital facilities. Geotechnical review of the foundation design of new hospital facilities would be required to adhere to the guidelines presented in *California Geological Survey – Note 48, Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings.*

Therefore, all proposed new development would be required to perform a geotechnical investigation to determine the potential for liquefaction present on a site specific basis, and identify both site preparation measures (e.g., use of engineered fill or treatment of liquefiable soils) and foundation design measures in a final design level geotechnical report. Implementation of the recommendations within the final design level report would ensure that any potential liquefaction as well as any associated ground failure induced by seismic activity would be minimized. As a result, the potential impacts related to ground failure including liquefaction under the CPHP would be less than significant.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As with all projects under the CPHP, the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would be designed and constructed in accordance with a required site-specific design level geotechnical report that would include measures to address any liquefaction hazards, if discovered on the project sites. The investigation and final recommendations for these projects and improvements at the campus site would be consistent with regulatory requirements including the CBC, SB 1953 and OSHPD, and the UC Seismic Safety Policy. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to City's building department permit review process to ensure compliance with applicable City building code provisions. As such, any liquefaction hazards, if present, would be reduced to less than significant levels.

Mitigation: None required.

Impact GEO-3: New development under the CPHP would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides. (Less than Significant with Mitigation)

CPHP

As discussed in the Environmental Setting, the campus site includes relatively steep terrain within the Reserve that has been subject to numerous slope stability studies. A 2006 slope stability risk assessment determined that there is a high probability for the occurrence of seismic-induced landslides under the rare combination of high pore pressure distribution (wet conditions) in the affected earth materials occurring at the same time as the scenario earthquake (Rutherford & Chekene 2006). A 2019 slope stability risk assessment using newly available high resolution LiDAR data integrated with field reconnaissance concluded that the areas of concern identified in 2006 remain unchanged; there is no evidence of large-scale slope movements during the intervening 2006-2018 period; evidence of small movements are noted in some cut slopes, especially steep vegetated slopes; and water and trees are the primary agents of observed small movements where root growth tends to open and widen existing cracks in near surface bedrock materials. Rockfalls are anticipated to be a maintenance item for the main roads where chert rock is exposed in cut slopes (Medical Center Way, Koret Way; see also Figure 4.6-2 in the Environmental Setting). Although rocks have a potential to impact vehicles and pedestrians, they are mostly small events requiring removal of fallen debris (Rutherford & Chekene, 2019).

While there continues to be no evidence of a deep seated landslide hazard at the campus site, the presence of smaller slope stability hazards could still result in damage or injury if not addressed appropriately. The 2019 slope stability report included several recommendations to improve slope stability and safety. With implementation of **CPHP Mitigation Measure GEO-3**, however, the impact associated with landslide hazards would be reduced to a less than significant level.

Slope stability hazards could also be caused by the excavation and grading activities for building construction that would occur under the CPHP. Current estimates indicate that nearly 400,000 cubic yards (cy) of total excavation would occur under the CPHP. The majority of this excavation would occur in the vicinity of the campus core related to regrading of ground elevations; accommodating new or widened roadways; constructing new foundations and basements for new structures, including excavation and potential slope cut excavation for the New Hospital and widening of Medical Center Way; and for accommodating the new service corridor and subsurface utilities.

If not managed appropriately, excavation and slope cut excavation could exacerbate slope instability, create unstable slopes or sidewalls that could damage improvements or threaten the stability of neighboring structures. However, similar to that discussed in Impact GEO-1, all development that would include excavation and grading activities, including slope cut excavation, would be required to prepare appropriate site specific design-level geotechnical evaluations prior to final design and commencement of construction. While the great majority of proposed improvements under the CPHP are located within the campus core, for any proposed disturbances that might occur adjacent to or within the Reserve that coincides with areas mapped as susceptible to earthquake-induced landslides, construction would also require compliance with the Seismic Hazards Mapping Act and CGS SP 117A. The final design-level geotechnical evaluation would include any necessary recommendations for shoring and anchoring of sidewalls to ensure that the impact due to slope stability hazards is reduced to a less than significant level. In addition, if applicable, the final design-level geotechnical report would be required to adhere to CGS SP 117A.

> **CPHP Mitigation Measure GEO-3:** UCSF shall implement the following geotechnical recommendations contained within the Rutherford & Chekene March 2019 report:
>
> - Remove selected trees located on or at the crest of steep rock slopes on which tree root wedging decreases stability. Determination of specific trees to be removed shall be made in association with a certified arborist and state licensed geotechnical engineer or engineering geologist. Removal will involve cutting trees and leaving stumps such that the root system can rot in situ with minimal disturbance to the surface geology.
> - Conduct qualitative monitoring of identified slopes by a state licensed geotechnical engineer or engineering geologist or as directed by said professional. Monitoring shall occur, at a minimum, after each moderate to major storm or earthquake, as defined by the geotechnical professional. The geotechnical professional shall submit a report of findings to UCSF that includes recommendations for additional slope stability improvements, if deemed necessary, to maintain continued safety in accordance with geotechnical standards and building code requirements.
>
> **Significance after Mitigation:** Implementation of these geotechnical recommendations would improve slope stability at the campus site and reduce the potential landslide hazards to less than significant.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As with all projects under the CPHP, the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would be designed and constructed in accordance with a required site specific design-level geotechnical report that would include measures to address any landslide or slope stability hazards. The investigation and final recommendations for these projects and improvements at the campus site would be consistent with regulatory requirements including the CBC, SB 1953 and OSHPD, as applicable, and the UC Seismic Safety Policy as it applies to slope stability. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to City’s building department permit review process to ensure compliance with applicable City building code provisions. As such, any landslide hazards would be reduced to less than significant levels.

Mitigation: Implement CPHP Mitigation Measure GEO-3.

Significance after Mitigation: Implementation of these geotechnical recommendations would improve slope stability for the areas in the vicinity of the Initial Phase projects and Initial Phase improvements at the campus site, and compliance with applicable codes and regulations would reduce the potential landslide hazards to less than significant.

Impact GEO-4: Construction and operation of development associated with the CPHP would not have the potential to result in the substantial erosion or the loss of topsoil. (Less than Significant)

CPHP

The areas of the campus site where the majority of proposed ground disturbing activities would occur are in areas that have already been developed and native topsoil is no longer present. However, as discussed in Impact GEO-3, above, the CPHP would also involve large volumes of excavation. Erosion of exposed soils can occur as a result of the forces of wind or water, and could be worsened during these ground disturbing activities.

Projects that disturb more than one acre of land during construction are required to file a Notice of Intent with the State Water Resources Control Board (SWRCB) to be covered under the National Pollution Discharge Elimination System (NPDES) Construction General Permit for discharges of stormwater associated with construction activity (also discussed further in Section 4.9, Hydrology and Water Quality). The Construction General Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) which would include erosion control measures in the form of best management practices (BMPs) that would be effective in reducing the potential for erosion during construction. BMPs would include, but would not be limited to, filtering runoff during construction, avoiding heavy grading and earthwork operations during the rainy season, and incorporating landscaping as early as possible. Once construction is completed for each element of the CPHP, the area of disturbance would be either covered by a structure, road or pathway, or landscaped such that the potential for erosion is minimized. Therefore, with adherence to existing regulatory requirements that would require implementation of erosion control BMPs during construction, the potential for erosion or loss of topsoil would be reduced to less than significant levels.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As with all projects under the CPHP, the Irving Street Arrival, RAB, and Initial Aldea Housing Densification projects, and as applicable, Initial Phase improvements, would be subject to the requirements of the NPDES Construction General Permit. Construction work that involves ground disturbing activities would be required to prepare and implement a SWPPP with erosion control BMPs. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to construction site runoff requirements and post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance. As such, erosion and loss to topsoil hazards would be reduced to less than significant levels.

Mitigation: None required.

Impact GEO-5: Development and redevelopment associated with the CPHP would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. (Less than Significant)

CPHP

Implementation of the CPHP would involve development and redevelopment projects on the campus site, primarily within the already developed campus core in the northern portion of the campus site, and to a lesser extent, in the Aldea Housing complex in the southeast portion of the campus site. As discussed above, existing structures within the campus range in age and were constructed under different stages of building code requirements and undocumented site preparation measures. Underlying subsurface materials likely include a variety of geotechnical conditions that could include artificial fills and other compressible soils or conditions that are otherwise unsuitable for new or redevelopment without adequate site preparations. While, as discussed above, there would be substantive amounts of excavation under the CPHP that could remove any existing near surface fills or other unsuitable soils, there could be areas with soils that are considered incapable of adequately supporting the new loadings (weight of new structures, foundations and/or engineered fill).

Landslide hazards are discussed above in Impact GEO-3, but unstable slopes could also be created by excavations for new development proposed under the CPHP that could result in on- or off-site landslides. However, as noted above, all construction activities would be required to adhere to CBC requirements which include measures to ensure that excavations are adequately protected from instability, largely through shoring requirements, that would be effective in minimizing the potential for on-or off-site landslides. Therefore, with conformance to the CBC and a required design-level geotechnical report that includes recommendations for excavation stability, the potential impact related to landslides and sidewall stability would be less than significant.

Lateral spreading, a phenomenon related to liquefaction where liquefiable materials can be displaced on exposed slopes, and liquefaction are addressed in Impact GEO-2, above. Adherence to CBC requirements and implementation of the design-level geotechnical report would be sufficient to reduce lateral spreading and liquefaction hazards, if present, to less than significant levels.

Subsidence and collapse are additional geotechnical hazards that would be evaluated as part of preliminary geotechnical investigations as required by the CBC. Each project specific final design-level geotechnical report would then use collected subsurface data to determine site preparation measures, such as the re-compaction of existing soils or placement of engineered fill, and foundation design measures in accordance with CBC, for the new loadings (weight of new structures) proposed. Implementation of these design-level criteria to geotechnical site preparation and foundation design would ensure that the potential for subsidence or collapse is reduced to less than significant levels

Therefore, as required by the CBC, the preparation of site specific design-level geotechnical reports would include recommendations for site preparation and foundation design that would ensure that any unstable soils would be minimized and the potential impacts would be less than significant.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As with all development under the CPHP, the Irving Street Arrival, RAB, and Initial Aldea Housing Densification projects, and Initial Phase improvements at the campus site would be designed and constructed in accordance with the requirements of the CBC which would include site specific geotechnical evaluations and design-level reports that contain recommendations for site preparation and foundations. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to City's building department permit review process to ensure compliance with applicable City building code provisions. As such, any hazards associated with unstable soils would be reduced to less than significant levels.

Mitigation: None required.

Impact GEO-6: Construction associated with the CPHP could have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Less than Significant with Mitigation)

CPHP

A direct effect on a unique paleontological resource would result from the direct damage or destruction of such a resource. Indirect impacts are not specifically caused by a development project, but may be a reasonably foreseeable result of such a project. Typical indirect impacts to paleontological resources include the destruction or loss of surface fossils from increased erosion or the non-scientific or unauthorized surface collection or subsurface excavation of a fossil or paleontological site.

Following the guidelines of the Society of Vertebrate Paleontology (SVP),[12,13] a review of the scientific literature and geologic mapping were used to determine paleontological sensitivities of

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[12] Society of Vertebrate Paleontology, 1995. Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources: standard guidelines. Society of Vertebrate Paleontology News Bulletin 163:22-27.

[13] Society of Vertebrate Paleontology, 2010. Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources. Available: http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx

the geologic units present on the campus site that would be subject to ground-disturbing activities.

As discussed in the Paleontological Setting, based on the University of California Museum of Paleontology (UCMP) Locality Search online database search, no known paleontological resources were identified within the campus site. The surficial Quaternary deposits that overlie the Franciscan Complex on the campus site have no paleontological potential. Furthermore, while invertebrate fossils have been discovered in the Franciscan Complex, they are not considered unique due to their abundance. The potential for encountering vertebrate fossils in the Franciscan sedimentary rocks is considered very rare because of the high deformity for most of the units. As a result, the Franciscan Complex has a low paleontological sensitivity. In addition, the vast majority of building sites on the campus site under the CPHP are already either developed with structures or have been previously disturbed in conjunction with prior development. Therefore, the potential to encounter intact paleontological resources is low.

However, the unmetamorphized sedimentary rocks of the Franciscan would have a higher sensitivity for containing paleontological resources. Should any new building development under the CPHP involve deep excavations that may encounter these less disturbed and potentially sensitive units, there could be the potential for encountering paleontological resources. Without any site-specific subsurface information or information regarding the maximum depths of excavation involved with each development project proposed under the CPHP, there can be no guarantee that paleontological resources would not be impacted. As a result, subsurface construction under the CPHP would have the potential, albeit low, to directly or indirectly destroy a previously unknown unique paleontological resource, which would be a significant impact. The impact would be reduced to a less-than-significant level by implementation of CPHP Mitigation Measure GEO-6, which would require that work halt in the event that paleontological resources are discovered during construction and appropriate action is taken.

> **CPHP Mitigation Measure GEO-6:** Prior to commencement of construction activities, all on-site personnel shall attend a mandatory pre-project training to outline the general paleontological sensitivity of the project area. The training will include a description of the types of resources that could be encountered and the procedures to follow in the event of an inadvertent discovery of resources.
>
> If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist meeting the Society of Vertebrate Paleontology (SVP) Standards can assess the nature and importance of the find and, if necessary, develop appropriate salvage measures in conformance with SVP standards (2010). If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified paleontologist shall evaluate the resource and determine whether it is “unique” under CEQA.
>
> Any discovered paleontological resources that are determined by the qualified paleontologist to be “unique” in accordance with CEQA shall be given appropriate salvage measures in conformance with SVP standards (2010).

Significance after Mitigation: Implementation of CPHP Mitigation Measure GEO-6 would ensure that paleontological resources would be identified before they are damaged or destroyed, and are properly evaluated and treated. Thus, the impact would be considered less than significant.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

As with all development under the CPHP, the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would also include earthwork activities that could encounter paleontological resources and would have a potential to directly or indirectly destroy a unique paleontological resource. The impact would be potentially significant.

Mitigation: Implement CPHP Mitigation Measure GEO-6.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact C-GEO-1: Implementation of the CPHP could have the potential to combine with past, present and reasonably foreseeable future projects to result in cumulatively considerable impacts related to geology and soils. (Less than Significant with Mitigation)

The geographic scope considered for the cumulative analysis is the greater Bay Area which is considered at high risk of experiencing a seismic event. As noted above, the Bay Area is considered to have a high probability of a substantive earthquake occurring over the next 30 years (USGS, 2015). Development of the CPHP along with the other cumulative projects would not directly or indirectly exacerbate those seismic risks. However, current and future project development at the campus site and elsewhere in the entire Bay Area region could expose additional people and structures to potentially adverse effects associated with earthquakes including seismic ground shaking, seismic related ground failure, and seismically-induced landslides. However, site-specific geotechnical studies required by the local agencies which typically adopt CBC seismic requirements would determine how future development projects could be designed to minimize exposure of people to these impacts. Therefore, current and future development would be constructed to more current standards which could potentially provide greater protection than the older structures throughout the region. Other current and future projects within the Bay Area region would also be required to adhere to current building standards with seismic design criteria that incorporates the most current science and understanding of geotechnical and seismic hazards such that damage or injury would be minimized.

Ground disturbing activities could expose soils in a manner that lead to increased erosion if not managed properly. Such erosion could cause unstable ground surfaces and result in eventual damage to roads, foundations and other improvements. Cumulative effects of increased erosion on receiving water quality is addressed in Section 4.9, Hydrology and Water Quality, Impact 4.9-7.

Construction activities at the campus site, as well as other current and future cumulative projects greater than 1 acre in size, which would apply to the vast majority of the cumulative projects, would be required to comply with the NPDES Construction General Permit, which contains erosion control requirements that would minimize the potential for soil erosion. The NPDES program requires the preparation and implementation of Stormwater Pollution Prevention Programs (SWPPPs) for construction activities that include BMPs that ensure erosion control measures are included during construction. All cumulative projects, including the CPHP, would be required to comply with these regulations, as would other nearby reasonably foreseeable development and other construction projects. In addition, once construction is completed, the cumulative projects generally include the cover of site soils with either landscaping or impervious surfaces, which limits the potential for erosion.

Many of the cumulative projects, like the campus site, are located within areas that could contain significant fossil resources. The associated subsurface disturbances for the construction of foundations and utilities increases the likelihood that paleontological resources could be uncovered, and it is therefore possible that cumulative development would result in the demolition or destruction of significant paleontological resources. This potential loss of resources is considered a significant cumulative impact. However, the destruction of paleontological resources is site specific and with the required mitigation above, CPHP Mitigation Measure GEO-6, the CPHP would not contribute considerably to the loss of paleontological resources, and the impact would be less than significant.

Mitigation: Implement CPHP Mitigation Measure GEO-6.

Significance after Mitigation: Less than Significant.

4.6.4 References

Association of Bay Area Governments (ABAG), 2019. Liquefaction Susceptibility and Liquefaction Seismic Hazard Zones, http://gis.abag.ca.gov/website/Hazards/?hlyr=liqSusceptibility. Accessed September 23, 2019.

Blake M. C. Jr., R.W. Graymer, and D.L. Jones, 2000. Geologic Map and Map Database of Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California. United States Geological Survey (USGS). Map. Scale 1:75,000.

California Geological Survey (CGS), 2002. Note 32, *How Earthquakes are Measured*.

California State Senate, 1994. Senate Bill 1953*,* September 22, 1994.

Hart, Earl and Bryant, William (Hart), 2007. *Fault Rupture Hazard Zones in California*, Interim Revision. 2007.

Jennings C. W., 2010. 2010 Fault Activity Map of California.

Office of Statewide Health Planning and Development (OSHPD), 2019a. Seismic Performance Ratings and Definitions, https://oshpd.ca.gov/construction-finance/seismic-compliance-and-safety/seismic-performance-ratings/. Accessed November 19, 2019.

OSHPD, 2019b. SPC/NPC Ratings of Acute Care Hospital Buildings as of 10/31/19, https://oshpd.ca.gov/ml/v1/resources/document?rs:path=/Construction-And-Finance/Documents/Seismic-Compliance/SPC-NPC-Ratings-List.pdf. Accessed October 31, 2019.

Peterson, Mark et. al., California Geologic Survey (Peterson), 1996. *Probabilistic Seismic Hazard Assessment State of California.*

Rutherford and Chekene, 2006. Slope Stability Risk Assessment, University of California San Francisco, San Francisco, California. August 26, 2006.

Rutherford and Chekene, 2019. New Campus-Wide Slope Stability Risk Assessment, University of California San Francisco, Parnassus Campus, San Francisco, California. March 29, 2019.

University of California Museum of Paleontology (UCMP), 2019. Locality Search online database. Accessed September 30, 2019.

United States Geologic Survey (USGS), 2015. *UCERF3: A New Earthquake Forecast for California's Complex Fault System,* March 2015.

4.7 Greenhouse Gas Emissions

This section describes and evaluates potential for the construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and the Initial Phase improvements, to result in significant impacts on greenhouse gas (GHG) emissions and global climate change. The section includes a description of the existing regional and local conditions, and an existing regulatory framework governing GHG emissions; presents the significance criteria used to evaluate impacts on GHG emissions, and the results of the impact assessment, including any significant impacts and associated feasible mitigation measures. The proposed CPHP is evaluated for consistency with plans and policies of the State of California, the University of California, and *Plan Bay Area 2040* related to GHG emissions and climate change.

4.7.1 Environmental Setting

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs contributes to global climate change. Climate change, which is discussed in more detail below, refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from:

- Natural factors, such as changes in the sun’s intensity or slow changes in the Earth’s orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of GHG and other gases to the atmosphere from volcanic eruptions); and
- Human activities that change the atmosphere’s composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).

The primary effect of global climate change has been a rise in the average global tropospheric temperature of 0.2 degree Celsius (°C) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming is likely to occur, which would induce further changes in the global climate system during the current century (IPCC, 2007).

Greenhouse Gases

The primary GHGs, or climate pollutants, are carbon dioxide (CO_2), black carbon, methane (CH_4), nitrous oxide (N_2O), ozone, and water vapor.

While the primary GHGs are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within the earth’s atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. N_2O is a byproduct of various industrial processes. Black carbon has emerged as a major contributor to global climate change, possibly second only to CO_2. Black carbon is produced naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass (Center for Climate and Energy Solutions, 2010). Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. GHGs are typically reported in "carbon dioxide-equivalent" measures (CO_2e).[1]

Effects of Climate Change

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system and inability to accurately model it, the uncertainty surrounding climate change may never be completely eliminated. Nonetheless, the *Fifth Assessment Report, Summary for Policy Makers* of the Intergovernmental Panel on Climate Change (IPCC) states that, "it is *extremely likely* that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forc[es [*sic*] together" (IPCC, 2014). A report from the National Academy of Sciences concluded that 97 to 98 percent of the climate researchers most actively publishing in the field support the tenets of the IPCC in that climate change is very likely caused by human (i.e., anthropogenic) activity (Anderegg *et al*, 2010).

The Fourth California Climate Change Assessment (Fourth Assessment), published in 2018, finds that the potential impacts in California due to global climate change include: loss in snow pack; sea level rise; more extreme heat days per year; more high ozone days; more extreme forest fires; more severe droughts punctuated by extreme precipitation events; increased erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation (OPR, 2018a).

The Fourth Assessment's findings are consistent with climate change studies published by the California Natural Resources Agency (CNRA) since 2009, starting with the *California Climate Adaptation Strategy* as a response to the Governor's Executive Order (EO) S-13-2008 (CNRA, 2009). In 2014, the CNRA rebranded the first update of the 2009 adaptation strategy as the *Safeguarding California Plan* (CNRA, 2014). The 2018 update to *Safeguarding California* identifies hundreds of ongoing actions and next steps State agencies are taking to safeguard Californians from climate impacts within a framework of 81 policy principles and recommendations (CNRA, 2018a). In 2016, the CNRA released *Safeguarding California: Implementation Action Plans* in accordance with EO B-30-15, identifying a lead agency to lead adaptation efforts in each sector. In accordance with the 2009 *California Climate Adaptation*

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[1] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

Strategy, the CEC was directed to develop a website on climate change scenarios and impacts that would be beneficial for local decision makers. The website, known as Cal-Adapt, became operational in 2011.[2] The information provided on the Cal-Adapt website represents a projection of potential future climate scenarios comprised of local average values for temperature, sea level rise, snowpack and other data representative of a variety of models and scenarios, including potential social and economic factors.

Below is a summary of some of the potential effects that could be experienced in California as a result of global warming and climate change.

Temperature Increase

As noted above, the primary effect of adding GHGs to the atmosphere has been a rise in the average global temperature. The impact of human activities on global temperature is readily apparent in the observational record. Since 1895, the contiguous U.S. has observed an average temperature increase of 1.5°F per century. The last five-year period (2014–2018) is the warmest on record for the contiguous U.S. (NOAA, 2019), while the 20 warmest years have occurred over the past 22-year period (Climate Central, 2019).

The Fourth Assessment indicates that average temperatures in California could rise by 5.6°F to 8.8°F by the end of the century, depending on the global trajectory of GHG emissions (OPR, 2018a). With climate change, extreme heat conditions and heat waves are predicted to impact larger areas, last longer, and have higher temperatures. Heat waves, defined as three or more days with temperatures above 90°F, are projected to occur more frequently by the end of the century. Extreme heat days and heat waves can negatively impact human health. Heat-related illness includes a spectrum of illnesses ranging from heat cramps to severe heat exhaustion and life-threatening heat stroke (CalEPA, 2013).

Wildfires

The expected hotter and drier conditions expected with climate change will make forests more susceptible to extreme wildfires. A recent study found that, if GHG emissions continue to rise, the frequency of extreme wildfires burning over approximately 25,000 acres would increase by nearly 50 percent, and the average area burned statewide each year would increase by 77 percent, by the year 2100. In the areas that have the highest fire risk, wildfire insurance is estimated to see costs rise by 18 percent by 2055 and the fraction of property insured would decrease (Westerling, 2018).

Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California and make it more difficult for the State to achieve air quality standards. Climate change may increase the concentration of ground-level ozone in particular, which can cause breathing problems, aggravate lung diseases such as asthma, emphysema, and chronic bronchitis, and cause chronic obstructive pulmonary disease. Emissions from wildfires can lead to excessive levels of particulate matter, ozone, and volatile organic compounds (Kenward *et al*, 2013). Additionally,

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[2] The Cal-Adapt website address is: http://cal-adapt.org.

severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State (CalEPA, 2013).

Water Supply and Water Quality

There is a high degree of uncertainty with respect to the overall impact of global climate change on future water supplies in California. Studies indicate considerable variability in predicting precise impacts of climate change on California hydrology and water resources. Increasing uncertainty in the timing and intensity of precipitation will challenge the operational flexibility of California's water management systems. Warmer, wetter winters would increase the amount of runoff available for groundwater recharge; however, this additional runoff would occur at a time when some basins are either being recharged at their maximum capacity or are already full. Conversely, reductions in spring runoff and higher evapotranspiration because of higher temperatures could reduce the amount of water available for recharge (CNRA, 2014).

Climate change could alter water quality in a variety of ways, including through higher winter flows that reduce pollutant concentrations (through dilution) or increase erosion of land surfaces and stream channels, leading to higher sediment, chemical, and nutrient loads in rivers. Water temperature increases and decreased water flows can result in increasing concentrations of pollutants and salinity. Increases in water temperature alone can lead to adverse changes in water quality, even in the absence of changes in precipitation.

Sea Level Rise

Climate changes could potentially affect: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion (CNRA, 2014).

Agriculture

California has a massive agricultural industry that represents 11.3 percent of total U.S. agricultural revenue. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, a changing climate presents significant risks to agriculture due to "potential changes to water quality and availability; changing precipitations patterns; extreme weather events including drought, severe storms, and floods; heat stress; decreased chill hours; shifts in pollinator lifecycles; increased risks from weeds, pest and disease; and disruptions to the transportation and energy infrastructure supporting agricultural production" (CNRA, 2014).

Ecosystems and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. With climate change, ecosystems and wildlife will be challenged by the spread of invasive species, barriers to species migration or movement in response to changing climatic conditions, direct impacts to species health, and mismatches in timing between seasonal life-cycle events such as species migration and food availability (CNRA, 2014).

Public Health[3]

Global climate change is also anticipated to result in more extreme heat events (OPRa et al, 2018). These extreme heat events increase the risk of death from dehydration, heart attack, stroke, and respiratory distress, especially with people who are ill, children, the elderly, and the poor, who may lack access to air conditioning and medical assistance. A warming planet is expected to bring more severe weather events, worsening wildfires and droughts, cause a decline in air quality, and result in rising sea levels, and increases in allergens and in vector-borne diseases, all of which present significant health and wellbeing risks for California populations (CNRA, 2018a).

Emissions Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing human society's contributions to climate change. This section summarizes the latest information on global, United States, California, and local GHG emission inventories.

Global Emissions

Global estimates are based on country inventories developed as part of programs of the United Nations Framework Convention on Climate Change. Worldwide man-made emissions of GHGs were approximately 49 billion metric tons (MT) CO_2e in 2010, including ongoing emissions from industrial and agricultural sources and emissions from land use changes (e.g., deforestation). Emissions of CO_2 from fossil fuel use and industrial processes account for 65 percent of this total CO_2e, while CO_2 emissions from all sources accounts for 76 percent of the total CO_2e. Methane emissions account for 16 percent and N_2O emissions for 6.2 percent. Worldwide emissions of GHGs in 1970 were 27 billion MT of CO_2e per year (IPCC, 2014), indicating that emissions have almost doubled in a span of 40 years.

U.S. Emissions

In 2017, the United States emitted about 6,457 million metric tons (MMT) of CO_2e, with 76.1 percent of those emissions coming from fossil fuel combustion. Of the major sectors nationwide, transportation accounts for the highest amount of GHG emissions (approximately 29 percent), followed by electricity (28 percent), industry (22 percent), agriculture (9 percent), commercial buildings (6 percent), and residential buildings (5 percent). Between 1990 and 2017, total U.S. GHG emissions rose by 1.3 percent, but emissions have generally decreased since peaking in 2005. Since 1990, U.S. emissions have increased at an average annual rate of 0.4 percent (USEPA, 2019).

State of California Emissions

The California Air Resources Board (CARB) compiles GHG inventories for the State of California. Based on the 2016 GHG inventory data (i.e., the latest year for which data are available from CARB) prepared by CARB in 2018, California emitted 429.4 MMT of CO_2e including emissions

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[3] As discussed in Chapter 2.0 Project Description, one of the primary objectives of implementation of the CPHP is to expand access to public health care.

resulting from imported electrical power (CARB, 2019). Between 1990 and 2016, the population of California grew by approximately 9.4 million (from 29.8 to 39.2 million) (California Department of Finance, 2018a). This represents an increase of approximately 31 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $773 billion in 1990 to $2.62 trillion in 2016 representing an increase of approximately 239 percent (just over three times the 1990 gross state product) (California Department of Finance, 2018b). Despite the population and economic growth, CARB's 2016 statewide inventory indicated that California's net GHG emissions in 2016 were just below 1990 levels, which is the 2020 GHG reduction target codified in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming Solutions Act of 2006 (AB 32). **Table 4.7-1** identifies and quantifies statewide anthropogenic GHG emissions and sinks (e.g., carbon sequestration due to forest growth) in 1990 and 2017. As shown in the table, the transportation sector is the largest contributor to statewide GHG emissions at approximately 40 percent in 2017.

TABLE 4.7-1
STATE OF CALIFORNIA GREENHOUSE GAS EMISSIONS

Category	Total 1990 Emissions using IPCC SAR (MMTCO$_2$e)	Percent of Total 1990 Emissions SAR/AR4	Total 2017 Emissions using IPCC AR4 (MMTCO$_2$e)	Percent of Total 2017 Emissions
Transportation	150.7	35%/35%	169.9	40%
Electric Power	110.6	26%/26%	62.4	15%
Commercial Fuel Use	14.4	3%/3%	15.1	4%
Residential	29.7	7%/7%	26.0	6%
Industrial	103.0	24%/24%	89.4	21%
Recycling and Waste[a]	–	–	8.9	2%
High GWP/Non-Specified[b]	1.3	<1%/<1%	19.9	5%
Agriculture/Forestry	23.6	6%/5%	32.4	8%
Forestry Sinks	-6.7		-- [c]	--
Net Total (IPCC SAR)	**426.6**	**100%[e]**	--	--
Net Total (IPCC AR4)[d]	**431**	**100%**	**424.1**	**100%**

NOTES:

IPCC = Intergovernmental Panel on Climate Change; SAR = Second Assessment Report; AR4 = Fourth Assessment Report.

[a] Included in other categories for the 1990 emissions inventory.
[b] High global warming potential (GWP) gases are not specifically called out in the 1990 emissions inventory.
[c] Revised methodology under development (not reported for 2017).
[d] CARB revised the State's 1990 level GHG emissions using GWPs from the IPCC AR4.
[e] Values may not total to 100 % due to rounding

SOURCES: California Air Resources Board, Staff Report – California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit, (2007); California Air Resources Board, "California Greenhouse Gas 2000-2017 Inventory by Scoping Plan Category – Summary," http://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed May 2020.

Bay Area Emissions Inventory

Based on 2015 data, in the nine county San Francisco Bay Area, GHG emissions from the transportation sector represent the largest source of the Bay Area's GHG emissions at 41 percent, followed by the stationary industrial sources at 26 percent, electricity generation and co-generation at 14 percent, and fuel use (primarily natural gas) by buildings at 10 percent. The remaining

8 percent of emissions is composed of fluorinated gas emissions and emissions from solid waste and agriculture. Of the total transportation emissions in 2015, on-road sources accounted for approximately 87 percent, while off-road sources accounted for the remainder (BAAQMD, 2017).

UCSF Emissions Inventory

To achieve consistency in reporting across different geographies, the GHG Protocol established by the World Research Institute, developed a GHG emissions classification system that classifies GHG emissions into three categories based on the nature and source of the emissions and the level of operational control exercised by the organization over the emission source. This classification system is listed in the University of California *Sustainable Practices Policy* and is used by the University, including UCSF, to gather data on its annual GHG emissions for reporting to the California Climate Action Registry (CCAR) and The Climate Registry (TCR).

Scope 1 Emissions are emitted on the project site/facility and are associated with on-site combustion of natural gas, fuel use in vehicle fleets, and fugitive emissions of gases used for refrigeration and scientific research. Fugitive gases include hydrofluorocarbon gases, perfluorocarbon gases, and sulfur hexafluoride (SF6).

Scope 2 Emissions are those associated with the consumption of purchased energy from off-site sources. Scope 2 electricity emissions reflect emissions from all energy used at the electricity-generating power plant, but exclude transmission and distribution losses, which are reported under Scope 3.

Scope 3 Emissions are indirect emissions not covered in Scope 2, including sources such as GHG emissions from employee commuting, business air and ground travel, electricity transmission and distribution losses, off-site wastewater treatment, and off-site municipal solid waste disposal.

The UC *Sustainability Practices Policy* requires each campus to report a GHG emissions inventory to an independent reporting organization. UCSF reported calendar year 2008 Scope 1 and Scope 2 emissions to the CCAR. UCSF currently reports its annual Scope 1 and Scope 2 GHG emissions inventory to TCR. TCR is a nonprofit collaboration among North American states, provinces, territories and Native Sovereign Nations that sets consistent and transparent standards to calculate, verify and publicly report greenhouse gas emissions into a single registry. The most recent inventory reported to TCR was for calendar year 2017. UCSF emissions inventories reported to outside agencies are verified by accredited independent auditors.

Since 2008, UCSF has also been required to report its Scope 1 emissions from its Central Utility Plant (CUP) at the Parnassus Heights campus site to CARB annually under the AB 32 Reporting Rule. UCSF tracks and reports its progress towards meeting its GHG emissions goals in its Annual Sustainability Report. The most recent inventory reported to CARB was for fiscal year 2017/2018. UCSF also reports to the UC Regents annually on its progress in meeting the goals in the UC *Sustainable Practices Policy*.[4] The most recent Annual Report on Sustainable Practices is

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[4] The University of California system-wide Annual Sustainability Reports are available at: http://sustainability.universityofcalifornia.edu/reports.html

for 2018/2019. **Table 4.7-2** below presents the UCSF GHG emissions inventory through 2018 as reported in its latest Annual Sustainability Report.

**TABLE 4.7-2
UCSF GREENHOUSE GAS EMISSIONS INVENTORY (MT CO2E/YEAR)**

Scope	Emission Category	1990	1990%	2008	2008%	2018	2018%
1	Buildings and Facilities – Natural Gas	44,923	40.9%	90,026	57.6%	80,420	50.8%
1	Buildings and Facilities – Other Fuels	114	0.1%	NA	NA	197	0.1%
1	UCSF Fleet	1,944	1.8%	3,200	2.0%	2,714	1.7%
1	Refrigerants and Medical Gases	3,500	3.2%	3,500	2.2%	1,656	1.0%
1	CCAR Acquisition Adjustment	10,178	9.3%	NA	NA	NA	NA
2	Buildings and Facilities - Electricity	24,529	22.3%	24,962	16.0%	29,108	18.4%
	Scope 1 and 2 Subtotal	*85,188*	*77.6%*	*121,688*	*77.8%*	*114,095*	*72.0%*
3	Business Air Travel	7,549	6.9%	12,582	8.0%	18,748	11.8%
3	Commute	17,080	15.6%	22,069	14.1%	25,529	16.1%
	Scope 1, 2, and 3 Total	**109,817**	**100.0%**	**156,339**	**100.0%**	**158,372**	**100.0%**

NOTE: 2018 inventory does not reflect 4,396 MT Co2e of offsets taken by UCSF. This allows equal comparison across years. Note that emissions reported in the Annual Sustainability Report only include Scope 3 mobile emissions under UCSF's control from employee air travel and commute. Emissions from travel by patients and visitors are not included therein but are considered in the impact analysis in Section 3.7.3 Impacts and Mitigation Measures.

SOURCE: University of California, San Francisco (UCSF), *UCSF Climate Action Plan –Greenhouse Gas Reduction Strategy*, April 2017 and TCR 2018 Summary, 2019.

Greenhouse Gas Emission Estimates and Energy Providers in California

Electricity in San Francisco is primarily provided by the Pacific Gas and Electricity Company (PG&E) and the San Francisco Public Utilities Commission (SFPUC). In 2010, electricity consumption in San Francisco was approximately 6.1 million megawatt-hours (MWh). Of this total, PG&E produced approximately 73 percent of the electricity distributed (4.5 million MWh; about 79 percent of San Francisco's electricity-driven GHG emissions), and the SFPUC produced approximately 14 percent of the electricity distributed (0.9 million MWh; about 0.01 percent of San Francisco's electricity-driven GHG emissions) (SFDOE, 2013).

Muni, City buildings, and a limited number of other commercial accounts in San Francisco are provided energy by the SFPUC, which operates three hydroelectric power plants that are part of San Francisco's Hetch Hetchy water supply and distribution system. This system has the lowest GHG emissions of any large electric utility in California.

The UC Regents has adopted a Direct Access Program for the purchase of carbon-free electricity, which contributes to achieving carbon neutrality in Scope 2 (indirect) emissions and has the ability to purchase up to 100 percent renewable electricity. As of 2018, UCSF purchases approximated 6 percent of the electricity supplied to the Parnassus Heights campus site as renewable power. UCSF has committed to purchasing electricity that is carbon-free electrical usage by 2025.

City of San Francisco Greenhouse Gas Footprint

The majority of San Francisco's GHG emissions are from electricity and natural gas used in buildings (45.1percent), and fuel used in cars and trucks (43.7 percent). The remaining emissions are from the landfilling of organic waste (6.4 percent), municipal operations (3.0 percent), agriculture/urban soils (1.6 percent), and wastewater treatment (0.1 percent). GHG emissions for calendar year 2018 totaled 5,138,095 MT CO_2e which represents a reduction of 15 percent from baseline 1990 levels (SF Environment, 2020).

4.7.2 Regulatory Framework

Federal

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

The U.S. Supreme Court held that the United States Environmental Protection Agency (USEPA) must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency* et al., twelve states and cities, including California, together with several environmental organizations sued to require the USEPA to regulate GHGs as pollutants under the CAA (127 S. Ct. 1438 (2007)). The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and the USEPA had the authority to regulate GHGs.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- ***Endangerment Finding*****:** The current and projected concentrations of the six key GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- ***Cause or Contribute Finding*****:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings did not, by themselves, impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

Vehicle Emissions Standards

In 1975, Congress enacted the Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the USEPA and National Highway Traffic Safety Administration (NHTSA) are responsible for establishing additional vehicle standards. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve both 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (USEPA, 2012). Notably, the State of California harmonized its vehicle efficiency standards through 2025 with the federal standards (see Advanced Clean Car program below).

In January 2017, USEPA issued its Mid-Term Evaluation of the GHG emissions standards, finding that it would be practical and feasible for automakers to meet the model year 2022-2025 standards through a number of existing technologies.

In August 2018, the USEPA revised its 2017 determination, and issued a proposed rule that maintains the 2020 Corporate Average Fuel Economy (CAFE) and CO_2 standards for model years 2021 through 2026.[5] The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mpg and 204 grams of CO_2 per mile for passenger cars and 31.3 mpg and 284 grams of CO_2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. On February 7, 2019, the State of California, joined by 16 other states and the District of Columbia, filed a petition challenging the USEPA's proposed rule to revise the vehicle emissions standards, arguing that the USEPA had reached erroneous conclusions about the feasibility of meeting the existing standards.[6] As of April, 9, 2019, the case was pending and oral arguments had not been scheduled.[7] Accordingly, due to the uncertainty of future federal regulations, this analysis assumes that the existing CAFE standards remain in place.

State

California has promulgated a series of executive orders, laws, and regulations aimed at reducing both the level of GHGs in the atmosphere and emissions of GHGs from commercial and private activities within the State. The major components of California's climate protection initiative are reviewed below.

California Environmental Quality Act and Senate Bill 97

Under CEQA lead agencies are required to disclose the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to raise sea levels, alter rainfall and snowfall, and affect habitat.

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the CNRA guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The CNRA was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the CNRA adopted amendments to the State CEQA Guidelines, as required by SB 97. The State CEQA Guidelines amendments provide guidance to public agencies

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[5] Federal Register. Vol. 83, No. 165. August 24, 2018. Proposed Rules.

[6] Amicus brief, 2019. USCA Case #18-1114, Doc#1772455_filed February 14, 2019. Available: http://climatecasechart.com/case/california-v-epa-4/. Accessed April 17, 2019.

[7] Amicus brief, 2019_USCA Case #18-1114 _Doc #1781696_filed 04.08.19. Available: http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2019/20190207_docket-18-1114_brief-1.pdf. Accessed April 17, 2019.

regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The amendments became effective March 18, 2010.

State CEQA Guidelines

The State CEQA Guidelines are embodied in the California Code of Regulations (CCR), Public Resources Code, Division 13, starting with Section 21000. The current State CEQA Guidelines section 15064.4 specifically addresses the significance of GHG emissions, requiring a lead agency to make a “good-faith effort” to “describe, calculate or estimate” GHG emissions in CEQA environmental documents (CNRA, 2018b). Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions, (2) whether the project GHG emissions would exceed a threshold of significance that the lead agency determines applies to the project, and (3) the extent to which the project would comply with “regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions (see, e.g., section 15183.5(b)).”

The CEQA Guidelines also state that a project’s incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (State CEQA Guidelines section 15064(h)(3)).

The CEQA Guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions, nor do they set a numerical threshold of significance for GHG emissions. Section 15064.7(c) clarifies that “when adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.”

When GHG emissions are found to be significant, CEQA Guidelines section 15126.4(c) includes the following direction on measures to mitigate GHG emissions:

> “Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:
>
> (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency’s decision;
>
> (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
>
> (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project’s emissions;
>
> (4) Measures that sequester greenhouse gases; and

(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions."

State of California Executive Orders

Executive Order S-3-05. In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger issued EO S-3-05, which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order S-1-07. EO S-1-07, which was signed by then-Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It established a low carbon fuel standard (LCFS) with a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020.

In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20 percent by 2030.

Executive Orders S-14-08 and S-21-09. In November 2008, then-Governor Schwarzenegger signed EO S-14-08, which expands the State's Renewable Portfolio Standard (RPS) to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the RPS by signing EO S-21-09, which directs CARB under its AB 32 authority to enact regulations to help the State meet its RPS goal of 33 percent renewable energy by 2020.

Executive Order S-13-08. Governor Schwarzenegger signed EO S-13-08 on November 14, 2008. The order called on State agencies to develop California's first strategy to identify and prepare for expected climate impacts. As a result, the *2009 California Climate Adaptation Strategy (CAS)* report was developed to summarize the best known science on climate change impacts in the State to assess vulnerability and outline possible solutions that can be implemented within and across State agencies to promote resiliency. The State has also developed an Adaptation Planning Guide (CNRA, 2012) to provide a decision-making framework intended for use by local and regional stakeholders to aid in the interpretation of climate science and to develop a systematic rationale for reducing risks caused or exacerbated by climate change. The State's third major assessment on climate change explores local and statewide vulnerabilities to climate change, highlighting opportunities for taking concrete actions to reduce climate-change impacts.

Executive Order B-16-12. In March 2012, Governor Jerry Brown issued an executive order establishing a goal of 1.5 million zero emission vehicles (ZEVs) on California roads by 2025. In addition to the ZEV goal, EO B-16-12 stipulated that by 2015 all major cities in California will have adequate infrastructure and be ‘zero-emission vehicle ready’; that by 2020 the State will have established adequate infrastructure to support 1 million ZEVs; that by 2050, virtually all personal transportation in the State will be based on ZEVs, and that GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

Executive Order B-30-15. Governor Brown signed EO B-30-15 on April 29, 2015, which directed the following:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- Ordered all State agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

Executive Order B-48-18. On January 26, 2018, Governor Brown issued an executive order establishing a goal of 5 million ZEVs on California roads by 2030.

Executive Order B-55-18. On September 10, 2018, Governor Brown signed EO B-55-18, committing California to total, economy-wide carbon neutrality by 2045. EO B-55-18 directs CARB to work with relevant State agencies to develop a framework to implement and accounting that tracks progress toward this goal.

State of California Policy and Legislation

Assembly Bill 1493. In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires that CARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State.”

To meet the requirements of AB 1493, in 2004 CARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California’s existing standards for motor vehicle emissions. All mobile sources are required to comply with these regulations as they are phased in from 2009 through 2016.

Because the Pavley standards (named for the bill’s author, State Senator Fran Pavley) would impose stricter standards than those under the CAA, California applied to the USEPA for a waiver under the CAA. In 2008, the USEPA denied the application. In 2009, however, the USEPA granted the waiver. The waiver has been extended consistently since 2009; however, in 2018 the USEPA and NHTSA indicated their intent to revoke California’s waiver, and prohibit future State emissions standards enacted under the CAA. As of April 2019, the waiver was still in place and the status of the federal government's revocation of the waiver was uncertain.

Senate Bills 1078 and 107. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006 – California Global Warming Solutions Act (Assembly Bill 32 and Senate Bill 32). In September 2006, then-Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act (AB 32). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

In 2016, Senate Bill (SB) 32 and its companion bill AB 197 amended HSC Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and included provisions to ensure the benefits of State climate policies reach into disadvantaged communities.

Climate Change Scoping Plan. A specific requirement of AB 32 was to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020. CARB developed and approved the initial Scoping Plan in 2008, outlining the regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs that would be needed to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives (CARB, 2008).

The First Update to the Scoping Plan was approved by CARB in May 2014 and built upon the initial Scoping Plan with new strategies and recommendations. CARB approved the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update) in December 2017. The 2017 Scoping Plan Update outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels (CARB, 2017). The 2017 Scoping Plan Update identifies key sectors of the State's implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target statewide 2030 emissions limit is 260 MMT CO_2e, and that further commitments will need to be made to achieve an additional reduction of 50 MMT CO_2e beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2030 limit set forth by EO B-30-15.

The 2017 Scoping Plan Update's strategy for meeting the State's 2030 GHG target incorporates the full range of legislative actions and State-developed plans that have relevance to the year 2030, including the following, described elsewhere in this section:

- Extending the low carbon fuel standard beyond 2020 and increasing the carbon intensity reduction requirement to at least 18 percent by 2030;
- SB 350, which increase renewables portfolio standard (RPS) to 50 percent and requires a doubling of energy efficiency for existing buildings by 2030;
- The 2016 Mobile Source Strategy to reduce emissions from mobile sources, including an 80 percent reduction in smog-forming emissions and a 45 percent reduction in diesel particulate matter from 2016 level in the South Coast Air Basin, a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels;
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies (described in more detail below);
- SB 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030; and
- Assembly Bill 398, which extends the State Cap-and-Trade Program through 2030.

In the 2017 Scoping Plan Update, CARB recommends statewide targets of no more than six metric tons CO_2e per capita by 2030 and no more than two metric tons CO_2e per capita by 2050. CARB acknowledges that because the statewide per capita targets are based on the statewide GHG emissions inventory that includes all emissions sectors in the State, it is appropriate for local jurisdictions to derive evidence-based local per-capita goals based on local emissions sectors and growth projections.

To demonstrate how a local jurisdiction can achieve their long-term GHG goals at the community plan level, CARB recommends developing a geographically-specific GHG reduction plan (i.e., climate action plan) consistent with the requirements of CEQA section 15183.5(b). A so-called "CEQA-qualified" GHG reduction plan, once adopted, can provide local governments with a streamlining tool for project-level environmental review of GHG emissions, provided there are adequate performance metrics for determining project consistency with the plan. Absent conformity with such a plan, CARB recommends "that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development" (CARB, 2017).[8] While acknowledging that recent land use development projects in California have demonstrated the feasibility to achieve zero net additional GHG emissions (e.g., Newhall Ranch Resource Management and Development Plan), the 2017 Scoping Plan Update states that "Achieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate

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[8] At pages 100 - 101.

for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA. Lead agencies have the discretion to develop evidence-based numeric thresholds (mass emissions, per capita, or per service population) consistent with this Scoping Plan, the State's long-term GHG goals, and climate change science…To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits locally" (CARB, 2017).[9]

Cap-and-Trade Program. Initially authorized by the California Global Warming Solutions Act of 2006 (AB 32), and extended through the year 2030 with the passage of Assembly Bill 398 (2017), the California Cap-and-Trade Program is a core strategy that the State is using to meet its GHG reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. CARB designed and adopted the California Cap-and-Trade Program to reduce GHG emissions from "covered entities"[10] (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 metric tons CO_2e per year), setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve reductions.[11] Under the Cap-and-Trade Program, an overall limit is established for GHG emissions from capped sectors. The statewide cap for GHG emissions from the capped sectors commenced in 2013. The cap declines over time. Facilities subject to the cap can trade permits to emit GHGs.[12]

Up to eight percent of a covered entity's compliance obligation can be met using carbon offset credits, which are created through the development of projects, such as renewable energy generation or carbon sequestration projects, that achieve a reduction of emissions or an increase in the removal of carbon from the atmosphere from activities not otherwise regulated, covered under the cap, or resulting from government incentives. Offsets are verified reductions of emissions whose ownership can be transferred to others. As required by AB 32, any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional. Offsets used to meet regulatory requirements must be quantified according to CARB-adopted methodologies, and CARB must adopt a regulation to verify and enforce the reductions. The criteria developed will ensure that the reductions are quantified accurately and are not double-counted within the system (CARB, 2008).

If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will require relatively more emissions reductions. In other words, the Cap-and-Trade Program can be adaptively managed by the State to ensure achievement of California's

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[9] At page 102.

[10] "Covered Entity" means an entity within California that has one or more of the processes or operations and has a compliance obligation as specified in subarticle 7 of the Cap-and-Trade Regulation; and that has emitted, produced, imported, manufactured, or delivered in 2008 or any subsequent year more than the applicable threshold level specified in section 95812 (a) of the Regulation.

[11] 17 CCR §§ 95800 to 96023.

[12] See generally 17 CCR §§ 95811, 95812.

2020 and 2030 GHG emissions reduction mandates, depending on whether other regulatory measures are more or less effective than anticipated.

Senate Bill 375. Signed into law on October 1, 2008, SB 375 supplements GHG reductions from new vehicle technology and fuel standards with reductions from more efficient land use patterns and improved transportation. Under the law, CARB approved GHG reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). CARB may update the targets every four years and must update them every eight years. MPOs in turn must demonstrate how their plans, policies and transportation investments meet the targets set by CARB through Sustainable Communities Strategy. The original target reductions for the Bay Area are a regional reduction of per-capita CO_2 emissions from cars and light-duty trucks by 7 percent by 2020 and by 15 percent by 2035, compared to a 2005 baseline. The year 2035 reduction target has since been revised in 2018 to reduce per capita vehicular GHG emissions 19 percent by 2035 from a 2005 baseline. ABAG addresses these goals in *Plan Bay Area*, which identifies Priority Development areas near transit options to reduce use of on-road vehicles.

Senate Bill X 1-2. Senate Bill X 1-2, signed by Governor Brown in April 2011, enacted the California Renewable Energy Resources Act. The law obligates all California electricity providers, including investor-owned and publicly-owned utilities, to obtain at least 33 percent of their energy from renewable resources by the year 2020.

Advanced Clean Cars Program. In January 2012, pursuant to Recommended Measures T-1 and T-4 of the Scoping Plan, CARB approved the Advanced Clean Cars Program, a new emissions-control program for model year 2017 through 2025.The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

The program also requires car manufacturers to offer for sale an increasing number of zero-emission vehicles (ZEVs) each year, including battery electric, fuel cell, and plug-in hybrid electric vehicles. In December 2012, CARB adopted regulations allowing car manufacturers to comply with California's GHG emissions requirements for model years 2017-2025 through compliance with the USEPA GHG requirements for those same model years.

Senate Bill 743. In 2013, Governor Brown signed Senate Bill (SB) 743, which added Public Resources Code section 21099 to CEQA, to change the way that transportation impacts are analyzed under CEQA to better align local environmental review with statewide objectives to reduce GHG emissions, encourage infill mixed-use development in designated priority development areas, reduce regional sprawl development, and reduce vehicle miles traveled (VMT) in California.[13]

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[13] Steinberg. 2013. Available online at http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB743, accessed on March 10, 2017.

As required under SB 743, OPR developed potential metrics to measure transportation impacts that may include, but are not limited to, total VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. The new VMT metric is intended replace the use of automobile delay and level of service (LOS) as the metric to analyze transportation impacts under CEQA. In its 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA, OPR recommends different thresholds of significance for projects depending on land use types. For example, residential and office space projects must demonstrate a VMT level that is 15 percent less than that of existing development to determine whether the mobile-source GHG emissions associated with the project are consistent with statewide GHG reduction targets. With respect to retail land uses, any net increase of VMT may be sufficient to indicate a significant transportation impact (OPR, 2018b). In 2016, the City of San Francisco adopted local VMT metrics to implement the directive from SB 743.

Mobile Source Strategy (2016). Implementing CARB's Mobile Source Strategy includes measures to reduce total light-duty VMT by 15 percent from the business-as-usual in 2050. The Mobile Source Strategy includes an expansion of the Advanced Clean Cars Program (which further increases the stringency of GHG emissions for all light-duty vehicles, and 4.2 million zero-emission and plug-in hybrid light-duty vehicles by 2030). It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 "last mile" delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels by 2030/2031.

California Sustainable Freight Action Plan (2016). California Sustainable Freight Action Plan includes strategies to improve freight efficiency and transition to zero emission freight handling technologies. It includes goals to achieve 25 percent improvement of freight system efficiency by 2030, and to deploy over 100,000 freight vehicles and equipment capable of zero emission operation by 2030, and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030 (Caltrans, 2016).

Senate Bill 350. The Clean Energy and Pollution Reduction Act of 2015. SB 350 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 increased the standards of the California Renewable Portfolio Standards (RPS) program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased from 33 percent to 50 percent by December 31, 2030. The Act requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in existing electricity and natural gas final end uses of retail customers by January 1, 2030.

Senate Bill 100. On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

SB 1383 (Short-lived Climate Pollutants). Senate Bill 1383, passed in 2016, requires statewide reductions in short-lived climate pollutants (SLCPs) across various industry sectors. The SLCPs covered under AB 1383 include methane, fluorinated gases, and black carbon – all GHGs with a much higher warming impact than carbon dioxide and with the potential to have detrimental effects on human health. SB 1383 requires CARB to adopt a strategy to reduce methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The methane emission reduction goals include a 75 percent reduction in the level of statewide disposal of organic waste from 2014 levels by 2025.

California Assembly Bill 341. AB 341, which became law in 2011, establishes a new statewide goal of 75 percent recycling through source reduction, recycling, and composting by 2020, and changed the way that the State measures progress toward the 75 percent recycling goal, focusing on source reduction, recycling and composting. AB 341 also requires all businesses and public entities that generate 4 cubic yards or more of waste per week to have a recycling program in place. The purpose of the law is to reduce GHG emissions by diverting commercial solid waste to recycling efforts and expand the opportunity for additional recycling services and recycling manufacturing facilities in California (CalRecycle, 2019).

California Assembly Bill 1826. AB 1826, known as the **Commercial Organic Waste Recycling Law**, became effective on January 1, 2016, and requires businesses and multi-family complexes (with 5 units or more) that generate specified amounts of organic waste (compost) to arrange for organics collection services. The law phases in the requirements on businesses with full implementation realized in 2019:

- ***First Tier***: Commencing in April 2016, the first tier of affected businesses included those that generate eight or more cubic yards of organic materials per week.
- ***Second Tier***: In January 2017, the affected businesses expanded to include those that generate four or more cubic yards of organic materials per week.
- ***Third Tier***: In January 2019, the affected businesses are further expanded to include those that generate four or more cubic yards of commercial solid waste per week.

State of California Building Codes

California Building and Energy Efficiency Standards (Title 24). The CEC first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically (typically every three years) to allow for the consideration and inclusion of new energy efficiency technologies and methods (CEC, 2015).

The current Title 24, Part 6 standards (2016 standards) were made effective on January 1, 2017. The next update to the Title 24 energy efficiency standards (2019 standards) goes into effect on January 1, 2020.

California Green Buildings Standards Code (CALGreen). Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. Since 2011, the CALGreen Code is mandatory for all new residential and non-residential buildings constructed in the State. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality. The CALGreen Code was most recently updated in 2016 to include new mandatory measures for residential and nonresidential uses; the new measures took effect on January 1, 2017 (California Building Standards Commission, 2016).

University of California

Policies and Plans of the UC Regents and University of California Office of the President (UCOP)

In 2007, the Chancellor of UCSF signed the *American College and University Presidents' Climate Commitment* (ACUPCC) to complete an emissions inventory, set target dates and interim milestones for becoming climate-neutral,[14] take steps to reduce GHG emissions, and prepare public progress reports (American College, 2007). As an intermediate target, UCOP established the goals of reducing GHG emissions to 2000 levels by 2014; 1990 levels by 2020; and achieving climate neutrality as soon as possible after reaching the 2014 and 2020 reduction targets. More recently, UCSF committed to achieving net zero Scope 1 and Scope 2 emissions by the year 2025.[15] These goals pertain to Scope 1 and Scope 2 emissions of the six Kyoto greenhouse gases originating from sources specified in the ACUPCC,[16] as well as Scope 3 emissions from business airline travel and commuting by UCSF staff and students. The Regents' policy specifies that these goals will be pursued while maintaining the primary research and education mission of the University.

As outlined in UCSF's *Climate Action Plan* of December 2009, the UC President adopted the *Policy on Sustainable Practices (Sustainable Practices Policy)* in 2007, which committed UC to

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[14] Climate neutrality for UCSF is defined as the University having a net-zero impact on the Earth's climate; it will be achieved by minimizing GHG emissions as much as possible and using other measures to mitigate the remaining GHG emissions (*UCSF Climate Action Plan*, December 2009).

[15] This is the current commitment made under the ACUPCC and the goal that is referenced in UCSF's Annual Progress Report to the UC Regents.

[16] The six greenhouse gases identified in the Kyoto Protocol/ACUPCC are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons.

implementing actions intended to minimize the University's impact on the environment and reduce the University's dependence on non-renewable energy. The policy was most recently revised in July 2019, and now covers the areas of green building design, clean energy, climate protection, sustainable transportation, sustainable building operations for campuses, zero waste, sustainable procurement, sustainable foodservices, sustainable water systems, and sustainability at UC Health. The UC *Sustainable Practices Policy* will continue to be updated over time.[17]

In addition, the *Sustainable Practices Policy* sets the following requirements and goals relevant to GHG emissions reduction:

New Buildings

- All new building projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the CBC energy-efficiency standards by at least 20% or meet the whole-building energy performance targets. The University will strive to design, construct, and commission buildings that outperform CBC energy efficiency standards by 30% or more, or meet the stretch whole-building energy performance targets.
- Acute care/hospital facilities and medical office buildings shall be designed, constructed, and commissioned to outperform ASHRAE 90.1 - 2010 by at least 30% or meet the whole-building energy performance targets.
- No new building or major renovation that is approved after June 30, 2019 shall use onsite fossil fuel combustion (e.g., natural gas) for space and water heating (except those projects connected to an existing campus central thermal infrastructure).
- All new buildings will achieve a USGBC LEED "Silver" certification at a minimum. All new buildings will strive to achieve certification at a USGBC LEED "Gold" rating or higher, whenever possible within the constraints of program needs and standard budget parameters.
- All new building projects will achieve at least two points within the available credits in LEED-BD+C's Water Efficiency category.

Renovated Buildings

- Major renovations of buildings are defined as projects that require 100% replacement of mechanical, electrical and plumbing systems and replacement of over 50% of all non-shell areas (interior walls, doors, floor coverings and ceiling systems) shall at a minimum comply with III.A.4 or III.A.5, above. Such projects shall outperform CBC Title 24, Part 6, currently in effect, by 20%. This does not apply to acute care facilities.
- Acute care facilities and medical office buildings undertaking major renovations as defined above will outperform ASHRAE 90.1- 2010 by 30%.
- Renovation projects with a project cost of $5 million or greater that do not constitute a Major Renovation, shall at a minimum achieve a LEED-ID+C Certified rating and register with the utilities' Savings by Design program, if eligible. This does not apply to acute care facilities.

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[17] The current version of the *Policy on Sustainable Practices* is available at: https://policy.ucop.edu/doc/3100155/SustainablePractices

Clean Energy

- *Energy Efficiency*: Each location will implement energy efficiency actions in buildings and infrastructure systems to reduce the location's energy use intensity by an average of least 2 percent annually.
- *On-campus Renewable Electricity*: Campuses and health locations will install additional on-site renewable electricity supplies and energy storage systems whenever cost-effective and/or supportive of the location's Climate Action Plan or other goals.
- *Off-campus Clean Electricity*: By 2025, each campus and health location will obtain 100% clean electricity. By 2018, the University's Wholesale Power Program will provide 100% clean electricity to participating locations.
- *On-campus Combustion*: By 2025, at least 40% of the natural gas combusted on-site at each campus and health location will be biogas. This goal may be realized when supply and transport of biogas is financially feasible and CARB certification is available.

Climate Protection

- Each campus and the UC Office of the President will develop strategies for meeting the following UC goals:
  - Climate neutrality from scope 1 and 2 sources by 2025
  - Climate neutrality from specific scope 3 sources (as defined by Second Nature's Carbon Commitment) by 2050 or sooner
  - Reduce greenhouse gas (GHG) emissions to 1990 levels by 2020, pursuant to the California Global Warming Solutions Act of 2006.

Sustainable Transportation

- Each location will reduce GHG emissions from its fleet and report annually on its progress. Locations shall implement strategies to reduce fleet emissions and improve fuel efficiency of all university-owned or operated fleet vehicles and equipment where practical options exist through acquisition and fleet operation protocols. By 2025, zero emission vehicles or hybrid vehicles shall account for at least 50% of all new light-duty vehicle acquisitions.
- The University recognizes that single-occupant vehicle (SOV) commuting is a primary contributor to commute GHG emissions and localized transportation impacts.
  - By 2025, each location shall strive to reduce its percentage of employees and students commuting by SOV by 10% relative to its 2015 SOV commute rates.
  - By 2050, each location shall strive to have no more 40% of its employees and no more than 30% of all employees and students commuting to the location by SOV.
- Consistent with the State of California goal of increasing alternative fuel – specifically electric – vehicle usage, the University shall promote purchases and support investment in alternative fuel infrastructure at each location.
  - By 2025, each location shall strive to have at least 4.5% of commuter vehicles be ZEV.
  - By 2050, each location shall strive to have at least 30% of commuter vehicles be ZEV.

- Each location will develop a business-case analysis for any proposed parking structures serving University affiliates or visitors to campus to document how a capital investment in parking aligns with each campus' Climate Action Plans and/or sustainable transportation policies.

Sustainable Building Operations for Campuses

- Each campus will submit for certification one pilot building at a LEED-O+M "Certified" level or higher.
- Each campus shall register a master site to certify campus-wide LEED-O+M credits and prerequisites to streamline the certification of multiple buildings through the LEED-O+M rating system by July 1, 2015. Each campus shall certify their campus-wide credits as soon as possible after the master site has been registered.
- Each campus shall seek to certify as many buildings as possible through the LEED-O+M rating system, within budgetary constraints and eligibility limitations.
- All locations shall implement an ongoing Green Lab Assessment Program supported by a department on campus to assess operational sustainability of research groups and the laboratories and other research spaces they use by Summer 2018.
  - At least one staff or faculty member from the location must have the role of managing the Green Lab Assessment Program.
  - Any green lab assessment programs and related efforts will adhere to all relevant UC, state and national policies and laws. Safety will never be compromised to accommodate sustainability goals.
  - All locations shall submit a UC Green Laboratories Action Plan by Summer 2018.

Zero Waste

- The University prioritizes waste reduction in the following order: reduce, reuse, and then recycle and compost.
- The University supports the integration of waste, climate and other sustainability goals, including the reduction of embodied carbon in the supply chain through the promotion of a circular economy and the management of organic waste to promote atmospheric carbon reduction. In support of this goal, waste reporting will include tracking estimated scope 3 greenhouse gas emissions.
- The University will reduce per capita total municipal solid waste generation at all locations other than health locations as follows:
  - Reduce waste generation per capita to Fiscal Year (FY) 2015/16 levels by 2020
  - Reduce waste generation by 25% per capita from FY2015/16 levels by 2025
  - Reduce waste generation by 50% per capita from FY2015/16 levels by 2030
- The University will achieve zero waste by 2020 at all locations other than health locations. Minimum compliance for zero waste is 90% diversion of municipal solid waste from landfill.
- By 2020, the University will prohibit the sale, procurement or distribution of packaging foam, such as food containers and packaging material, other than that utilized for laboratory supply or medical packaging and products. The University seeks to reduce, reuse and find alternatives for

packaging foam used for laboratory and medical packaging products. No packaging foam or expanded polystyrene shall be used in foodservice facilities for takeaway containers.

Sustainable Procurement

- The University values the health and wellbeing of its students, staff, faculty, visitors, and suppliers. The University seeks to provide healthy and accessible conditions for the communities it serves and this will be considered as a fundamental factor when making procurement decisions. Where functional alternatives to harmful products or impacts exist, they are to be strongly preferred.
- The University prioritizes waste reduction in the following order: reduce, reuse, and then recycle. Accordingly, sustainable procurement will look to reduce unnecessary purchasing first, then prioritize purchase of surplus or multiple use products, before looking at recyclable or compostable products.
- The University's sustainable purchasing requirements are:
  - 100% compliance with Required Level Green Spend criteria within three fiscal years of the addition of those products and/or product categories to the Guidelines.
  - 25% Green Spend as a total percentage of spend per product category; target to be reached within three fiscal years after a category is added to the Guidelines.
  - 25% Economically and Socially Responsible Spend as a total percentage of addressable spend; target to be reached within five fiscal years of adoption of this section in the Guidelines.
- The University's sustainable purchasing reporting requirements are:
  - Reporting on percent Green Spend beginning at the close of the first full Fiscal Year after a category is added to the Guidelines.
  - Reporting on percent Economically and Socially Responsible Spend beginning at the close of Fiscal Year 2018/19.
  - Reporting on percent Sustainable Spend will be piloted by UCOP beginning at the close of Fiscal Year 2018/19.
- Each University's Procurement department will integrate sustainability into its processes and practices, including competitive solicitations, in order to satisfy the sustainable purchasing goals outlined above for products, as well as for the procurement of services. The University will do so by:
  - Allocating a minimum of 15% of the points utilized in solicitation evaluations to sustainability criteria. Criteria may include, but is not limited to, sustainable product attributes, supplier diversity, supplier practices, contributions to health and wellbeing, and materials safety.
  - Supporting outreach, education and providing equal access to small, diverse, and disadvantaged suppliers for all applicable University procurement opportunities.
  - Comparing the Total Cost of Ownership when evaluating costs for goods and services in the selection of suppliers, whenever feasible.

  - Targeting sustainable products and services for volume-discounted pricing to make less competitive or emerging sustainable products and services cost competitive with conventional products and services.
  - Leveraging its purchasing power and market presence to develop sustainable product and service options where not already available.
  - Requiring packaging for all products procured by the University be designed, produced, and distributed to the end user in a sustainable manner.
  - Contracting with suppliers of products (e.g. electronics, furniture, lab consumables) that have established (preferably non-manufacturer specific) end-of-life reuse, recycling, and/or takeback programs at no extra cost to the University, and in compliance with applicable federal, state, and University regulations regarding waste disposal.
  - Requiring sustainability related purchasing claims to be supported with UC recognized certifications and/or detailed information on proven benefits, durability, recycled content, and recyclability properties, in accordance with the Federal Trade Commission's Green Guides for the use of environmental marketing claims.
  - Working with its suppliers to achieve greater transparency and sustainable outcomes throughout the supply chain. This may include maximizing the procurement of products that optimize use of resources from extraction through manufacturing and distribution.
- All procurement staff will consult the UC Sustainable Procurement Guidelines document for minimum mandatory sustainability requirements to be included in solicitations for a given product or service category.

Sustainable Foodservice Operations

- *Food Procurement*: Each campus and health location foodservice operation shall strive to procure 20% sustainable food products by the year 2020, while maintaining accessibility and affordability for all students and UC Health Location's foodservice patrons.
- *Education*: Each campus and health location shall provide patrons with access to educational materials that will help support their food choices.
- *Engagement with External Stakeholders*: Campus and health location departments, organizations, groups, and individuals shall engage in activities with their surrounding communities that support common goals regarding sustainable food systems.
- *Sustainable Operations*: Campus and health location foodservice operations shall strive to earn third party "green business" certifications for sustainable dining operations.
- Retail foodservice tenants will strive to meet the policies. above. Given the constraints faced by nationally-branded franchises that must purchase food through corporate contracts, location departments managing retail foodservice tenants will have the option of meeting the procuring 20% of all sustainable food products by the year 2020 policy by aggregating the purchases of all retail entities under the jurisdiction of a single operational unit on location.

Sustainable Water Systems

- Locations will reduce growth-adjusted potable water consumption 20% by 2020 and 36% by 2025, when compared to a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08. Locations that achieve this target early are encouraged to set more stringent goals to further reduce potable water consumption. Each Campus shall strive to reduce potable water used for irrigation by converting to recycled water, implementing efficient irrigation systems, drought tolerant planting selections, and/or by removing turf.

- Each location will develop and maintain a Water Action Plan that identifies long term strategies for achieving sustainable water systems. Campuses will include quantification of total square feet of used turf and under-used turf areas on campus as well as a plan for phasing out un-used turf irrigated with potable water.
- Each campus shall identify existing single pass cooling systems and constant flow sterilizers and autoclaves in laboratories and develop a plan for replacement.
- New equipment requiring liquid cooling shall be connected to an existing recirculated building cooling water system, new local chiller vented to building exhaust or outdoors, or to the campus chilled water system through an intervening heat exchange system if available.
  - Once through or single pass cooling systems shall not be allowed for softplumbed systems using flexible tubing and quick connect fittings for short term research settings.
  - If no alternative to single pass cooling exists, water flow must be automated and controlled to avoid water waste.

Sustainability at UC Health

- Health locations will achieve Practice Greenhealth's award "Greenhealth Partner for Change". Locations will use the definitions in Practice Greenhealth to set medical-center-specific goals for waste diversion and reduction as well as water reduction.
- UC San Francisco Health and UCLA Health have the following targets:
  - By 2020, 50% of total solid waste diverted from landfill and incineration.
  - By 2020, 40 lbs of total solid waste per Adjusted Patient Day.
  - In line with campus targets, UCLA and UCSF Medical Centers will reduce growth-adjusted potable water consumption 20% by 2020 and 36% by 2025, when compared to a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08.

UC Carbon Neutrality Initiative

In November 2013, UC President Janet Napolitano announced the UC Carbon Neutrality Initiative, which commits the UC to achieving climate neutrality from Scope 1 and 2 sources by 2025 and progressing toward climate neutrality from specific Scope 3 sources by 2050 or sooner. Scope 1 emission sources include direct emissions from sources owned or controlled by the UC, such as emissions from stationary combustion, process emissions, and fugitive emissions; while Scope 2 sources include indirect emissions from purchased electricity and purchased cogeneration for heating or cooling. Scope 3 sources include emissions from all other sources that occur as a result of university operations but occur from sources not owned or controlled.

UC Strategic Energy Plan

The UC Strategic Energy Plan (SEP) was prepared in 2008 for all UC campuses, to fulfill a goal of UC's *Policy on Sustainable Practices* to implement energy efficiency projects in existing buildings. The UCSF portion of the SEP analyzes energy use and GHG trends, and identifies potential energy efficiency retrofit projects for all buildings over 50,000 square feet at UCSF (primarily lighting, HVAC, commissioning and central plant measures). Energy savings, GHG emissions savings, and financial returns are estimated for hundreds of projects, which are grouped into Tier 1 (high priority) and Tier 2 (longer term planning) projects based on their energy savings and financial payback. The SEP project list is updated every year by each campus to evaluate the feasibility of additional energy-saving measures.

University of California, San Francisco

UCSF has a robust sustainability program covering sustainability activities across the entire campus and medical center. Through its Office of Sustainability, UCSF has created work groups addressing sustainability in the following areas, most of which have direct implications for GHG emissions: Carbon Neutrality, Zero Waste, Water Conservation, Sustainable Food, Toxics Reduction, Green Procurement, Green Buildings, and Sustainable Operations.

UCSF's Sustainability Governance consists of the Academic Senate Sustainability Committee and the University’s Advisory Committee on Sustainability (UACS). The Academic Senate Sustainability Committee identifies faculty recommendations on improving sustainability at UCSF. The charge of the UACS is to:

- Annually examine UCSF’s effect on the environment from a comprehensive perspective;
- Evaluate existing UCSF policies, procedures, and programs that affect the environment;
- Serve as a coordinating body for groups or individuals concerned with sustainability issues;
- Advise selected work groups in the development and implementation of UCSF’s sustainability initiatives and goals; and
- Support reduction of greenhouse gas emissions to 1990 levels by 2020.

UCSF includes a Sustainability Dashboard on its LivingGreen web site that includes performance metrics for multiple issue areas, including GHG emissions. UCSF also publishes an annual sustainability report on its web site.[18]

The Sustainability Annual Report summarizes the entire UCSF Campus’ key accomplishments utilizing 10 key categories of the UC *Sustainable Practices Policy*, for a given Fiscal Year, with the most recent report documenting FY18. The FY18 report also includes goals for FY19. Where available, it presents data separately for the UCSF Campus and the UCSF Medical Center. Where data is reported for both, the report refers to the entire UCSF campus.

UCSF Climate Action Plan and GHG Reduction Strategy

As part of implementing the UC *Sustainable Practices Policy*, UCSF developed a Climate Action Plan in 2009, a long-term strategy for voluntarily meeting the State of California’s goal for reducing GHG emissions to 1990 levels by 2020, pursuant to AB 32. In addition, as part of the 2014 LRDP, UCSF developed a GHG Reduction Strategy (GHGRS) to provide streamlined

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[18] Annual Sustainability Reports are available on the UCSF LivingGreen web site: http://sustainability.ucsf.edu/.

analysis under CEQA for future development projects. Both of these documents were updated in 2017 to create a combined UCSF Climate Action Plan – GHGRS to reflect changes that have occurred since 2014 in both the goals outlined in the UC *Sustainable Practices Policy* and the addition of new campus projects unforeseen at the time of LRDP adoption.

Specifically, the updated GHGRS includes strategies to meet UC goals to achieve climate neutrality from Scope 1 and Scope 2 emissions by 2025. Additionally, the 2017 update recognizes new GHG reduction target in response to the State's Climate Change Scoping Plan to achieve a 40 percent reduction in GHGs compared to 1990 levels by year 2030. The update also:

- Considers the completion of the Five Points Solar Park, a 60-megawatt solar power installation built to supply renewable energy to the University of California;
- Consolidates GHG reduction efforts already underway and planned for UCSF over the life of the LRDP through 2035;
- Quantifies the impact on GHG emissions of projected land use as represented by the LRDP; and
- Helps streamline California Environmental Quality Act (CEQA) review of future campus development projects as consistent with the LRDP growth projections and the GHG reduction policies and programs contained in the GHGRS.

Under CEQA, the effects of GHG emissions are considered a potentially significant environmental impact. In addressing climate change, CEQA provides a useful mechanism for local agencies to evaluate new development on a comprehensive basis rather than on an individual project basis. The 2017 GHGRS has been further updated by UCSF to reflect the proposed amendment of the 2014 LRDP from the incorporation of the proposed CPHP. The revised GHGRS portion of the document has been prepared in accordance with Section 15183.5 of the CEQA Guidelines which addresses how lead agencies can analyze and mitigate GHG impacts at a programmatic level and streamline environmental review of future projects that are consistent with the policies and programs contained in the GHGRS. This updated GHGRS is contained as Appendix GHGRS in this Draft EIR and will be considered as part of the proposed amendment of the LRDP.

The updated GHGRS requires the implementation of Tier 1 emission reduction measures along with a mix of Tier 2 reduction measures identified by UCSF to close the gap necessary to meet emission reduction targets for 2020, 2025, 2035, and 2050 and allow for utilization of the streamlining process provision under CEQA. Consequently, a future development project would be considered consistent with the revised GHGRS if it is consistent with the assumptions within the GHGRS with respect to the amount and type of development and inclusive of GHG reduction measures within the GHGRS. Projects consistent with the revised GHGRS, inclusive of conformance with any applicable performance measures, would not be required to provide additional analysis under CEQA Sections 15064(h) and 15183.5(b)(2). The methodology for screening projects is discussed below under the *Approach to Analysis*.

UCSF Transportation Demand Management

UCSF employs an aggressive Transportation Demand Management (TDM) program that includes an extensive shuttle system, among other alternative transportation opportunities. Based on

UCSF’s 2018 employee commute survey, approximately 80 percent of the campus faculty, staff and student population commutes by means other than driving alone. Key features of UCSF’s existing TDM program include the following:

- 60 shuttles serving 17 locations, with over 2.3 million passengers per year
- 33 vanpools that travel as far as Sacramento and operate using the Green Road Safety System, which improves fuel consumption and safety
- 62 reserved carpool stalls at various sites
- Marin Commute Club buses with about 55 daily riders who live in Marin and Sonoma Counties to the north of San Francisco
- 18 City CarShare vehicles with dedicated parking spaces, along with 1,500 UCSF members who can use these vehicles by scheduling their use on-line
- 18 electric-vehicle charging stations at Parnassus Heights, Mount Zion, and Mission Bay, with plans for another 20 at Mission Bay in the Owens Street Garage and 10 at other locations
- Over 1,900 UCSF users of the ZimRide online carpool matching program
- 972 bicycle parking spaces with another 100 planned at Mission Bay, as well as bike racks on shuttles, a cyclist shower program that allows bicyclists to use UCSF showers at a discount, and other bicycle-related benefits
- Bay Area Bike Share station at Mission Bay (due to commence operation by the end of 2016), where members will have access to bicycles (and a regional network of stations) provided by the Bay Area Air Quality Management District
- More than 400 off-street motorcycle parking stalls in garages and surface parking lots
- An “emergency ride home” program to encourage use of alternative modes of transportation
- Clipper Card (public transit pass) sales at easily accessible locations, including through UCSF’s website
- Close to 1,800 UCSF employees that participate in a pretax transit program, which saved UCSF employees over $700,000 on public transit commute costs in 2013
- As UCSF is subject to the City of San Francisco’s parking tax, market rate pricing for parking will be implemented that will further discourage personal vehicle use.

Regional

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) is the regional government agency that regulates stationary sources of air pollution within the nine San Francisco Bay Area counties. BAAQMD regulates GHG emissions through the following plans, programs, and guidelines.

Clean Air Plan. BAAQMD and other air districts prepare clean air plans in accordance with the state and federal Clean Air Acts. On April 19, 2017, the BAAQMD Board of Directors adopted the 2017 Clean Air Plan Spare the Air, Cool the Climate, an update to the 2010 Clean Air Plan.

The Clean Air Plan is a comprehensive plan that focuses on the closely-related goals of protecting public health and protecting the climate. Consistent with the State's GHG reduction targets, the plan lays the groundwork for a long-term effort to reduce Bay area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

As part of the Basin-Wide Methane Strategy outlined in the 2017 Clean Air Plan, the BAAQMD is currently developing a new regulation to address significant releases of methane in the Bay Area, called *Regulation 13, Rule 1: Significant Methane Releases*, which would serve as a general backstop rule to address releases of methane from regulated sources.

BAAQMD Climate Protection Program. The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. The BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

BAAQMD CEQA Air Quality Guidelines. The BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. The guidelines also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines, which included significance thresholds for GHG emissions based on the emission reduction goals for 2020 articulated by the State Legislature in AB 32. The first threshold, 1,100 MT CO_2e per year, is a numeric emissions level below which a project's contribution to global climate change would be less than cumulatively considerable. For larger and mixed-use projects, the Guidelines state that emissions would be less than cumulatively significant if the project as a whole would result in an efficiency of 4.6 MT CO_2e per service population or better (BAAQMD, 2010).

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. That decision was appealed to the Court of Appeal and one of the issues in the case has been decided by the California Supreme Court. The Supreme Court found that CEQA does not require an analysis of how existing environmental conditions will impact future residents or users of a proposed project, and remanded the case down for the lower court to decide remaining issues. Following the Superior Court order, the BAAQMD released revised *CEQA Air Quality Guidelines* in May of 2012 that include guidance on calculating air pollutant emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and which set aside the significance thresholds. There was no challenge to BAAQMD’s 2010 greenhouse gas emissions thresholds or the substantial evidence supporting those thresholds (BAAQMD, 2012). In May 2017, the Air District published a new version of the Guidelines, which included no changes to the quantitative greenhouse gas thresholds, but presented them as guidance and recommended that lead agencies consider the information to develop their own thresholds of significance.

Under BAAQMD’s current *CEQA Air Quality Guidelines*, a local government may prepare and adopt a qualified GHG Reduction Strategy that is consistent with AB 32 goals. If a project is consistent with an adopted qualified GHG Reduction Strategy and General Plan that addresses the project's GHG emissions, it can be presumed that the project will not have significant GHG emissions under CEQA (BAAQMD, 2017a).

Metropolitan Transportation Commission/Association of Bay Area Governments Sustainable Communities Strategy. MTC is the federally recognized MPO for the nine county Bay Area. On July 18, 2013, the *Plan Bay Area* was jointly approved by ABAG’s Executive Board and by MTC. The Plan includes the region’s Sustainable Communities Strategy, as required under SB 375, and the 2040 Regional Transportation Plan. The Sustainable Communities Strategy lays out how the region will meet GHG reduction targets set by CARB. CARB’s current targets call for the region to reduce per capita vehicular GHG emissions 10 percent by 2020 and 19 percent by 2035 from a 2005 baseline (CARB, 2018). A central greenhouse gas reduction strategy of *Plan Bay Area* is the concentration of future growth within Priority Development Areas (PDAs) and Transit Priority Areas (TPAs). To be eligible for PDA designation, an area must be within an existing community, near existing or planned fixed transit or served by comparable bus service, and planned for more housing. To be eligible for PDA designation, an area must be within an existing community, near existing or planned fixed transit or served by comparable bus service, and planned for more housing.[19] A TPA is an area within one-half mile of an existing or planned major transit stop such as a rail transit station, a ferry terminal served by transit, or the intersection of two or more major bus routes (MTC, 2013).

On July 26, 2017, MTC adopted *Plan Bay Area 2040*, a focused update that builds upon the growth pattern and strategies developed in the original *Plan Bay Area* but with updated planning assumptions that incorporate key economic, demographic and financial trends since the original plan was adopted (MTC, 2017). The Parnassus Heights campus site is located within a Transit Priority Area (TPA) with respect to *Plan Bay Area 2040*. As stated above, a TPA is defined as an area within one-half mile of an existing or planned major transit stop (Public Resources Code Section 21099(a)(7)), where “major transit stop” is defined as a site containing any of the following: an existing rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

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[19] It should be noted that on February 20, 2020, MTC adopted growth geographies for several new PDAs, including a “Central City Neighborhoods PDA” in San Francisco that includes a portion of the Parnassus Heights campus site. This and other new PDAs are not included in the *Plan Bay Area 2040*, but will be studied in the *Draft Plan Bay Area 2050 Blueprint* (MTC, 2020).

Local

City and County of San Francisco

Pursuant to Article 9, Section 9 of the California State Constitution, UCSF is constitutionally exempt from local land use regulations whenever using property under its control in furtherance of its educational purposes. This authority includes University master planning and oversight of land uses and the development, maintenance and use of physical facilities under UCSF control. Thus, the following City plans and policies do not apply to UCSF and are presented for informational purposes only. The following is a general discussion of CCSF policy with respect to GHG emissions.

San Francisco Greenhouse Gas Reduction Ordinance

In May 2008, the CCSF adopted Ordinance No. 81-08 amending the San Francisco Environment Code to establish GHG emissions targets and departmental action plans and to authorize the San Francisco Department of the Environment to coordinate efforts to meet these targets. The City ordinance establishes the following GHG emissions reduction limits and target dates by which to achieve them: determine 1990 Citywide GHG emissions by 2008, the baseline level, with reference to which target reductions are set; reduce GHG emissions by 25 percent below 1990 levels by 2017; reduce GHG emissions by 40 percent below 1990 levels by 2025; and reduce GHG emissions by 80 percent below 1990 levels by 2050. The City's GHG reduction targets are consistent with—in fact, more ambitious than—those set forth in Governor Brown's recent Executive Order B-30-15 by targeting a 40 percent reduction by 2025 rather than by 2030.

San Francisco Greenhouse Gas Reduction Strategy

San Francisco has developed a number of plans and programs to reduce the City’s contribution to global climate change and to meet the goals of the City’s Greenhouse Gas Reduction Ordinance. San Francisco’s Greenhouse Gas Reduction Strategy documents its actions to pursue cleaner energy, energy conservation, and alternative transportation and solid waste policies. For instance, the City has implemented mandatory requirements and incentives that have measurably reduced GHG emissions including, but not limited to, increasing the energy efficiency of new and existing buildings, installation of solar panels on building roofs, implementation of a green building strategy, adoption of a zero waste strategy, a construction and demolition debris recovery ordinance, a solar energy generation subsidy, incorporation of alternative fuel vehicles in the City’s transportation fleet (including buses), and a mandatory recycling and composting ordinance. The strategy also identifies 42 specific regulations for new development that would reduce a project’s GHG emissions.

San Francisco’s policies and programs have resulted in a reduction in GHG emissions to below 1990 levels, exceeding statewide AB 32 GHG reduction goals. San Francisco’s GHG emissions in 2010 were 5.3 MMT CO_2e, which represents a 14.5 percent reduction in GHG emissions compared to 1990 levels (6.2 MMT CO_2e). The reduction is largely a result of reduced GHG emissions from the electricity sector, from 2.0 million metric tons CO_2e (1990) to 1.3 MMT CO_2e (2010), and the waste sector, from 0.5 MMT CO_2e (1990) to 0.2 MMT CO_2e (2010) (SF DOE, 2013).

4.7.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Approach to Analysis

GHG emissions and global climate change represent cumulative impacts of human activities and development projects locally, regionally, statewide, nationally, and worldwide. GHG emissions from all of these sources cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects around the world have contributed and will continue to contribute to global climate change and its associated environmental impacts.

BAAQMD has prepared guidelines and methodologies for analyzing the impacts associated with GHG emissions. These guidelines are consistent with CEQA Guidelines sections 15064.4 and 15183.5, which address the analysis and determination of significant impacts from a proposed project's GHG emissions. CEQA Guidelines section 15064.4 allows lead agencies to rely on a qualitative analysis to describe GHG emissions resulting from a project. CEQA Guidelines Section 15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of greenhouse gases and describes the required contents of such a plan. Accordingly, UCSF prepared its own combined Climate-Action Plan - GHGRS, updated in 2017 (described under *Regulatory Framework*, above). The updated GHGRS provides a framework for meeting the new (2017) statewide 2030 GHG emissions reduction target of 40 percent below 1990 levels and maintaining its status as a qualified GHG reduction plan per *CEQA Guidelines* section 15183.5, through the year 2035. The intent of the updated GHGRS is to ensure that UCSF can answer "no" to the above stated questions regarding "Greenhouse Gas Emissions" in the Environmental Checklist Form (Appendix G) of the *CEQA Guidelines.*

The GHGRS provides a checklist for determining project consistency with the GHGRS and to provide the opportunity to demonstrate that a project would minimize GHG emissions while ensuring that UCSF will achieve its projected reductions of GHGs. The checklist screens projects for important GHG reduction measures that, when implemented, will provide confidence that the project will not impede UCSF's ability to meet its GHG emissions targets. The checklist is based on the GHGRS year 2020 emissions target and growth assumptions associated with the 2014 LRDP. Future year emission and growth targets for year 2030 to achieve the statewide mandated GHG emissions reduction target of 40 percent below 1990 levels are included in the updated GHGRS in Appendix GHGRS.

In lieu of a GHGRS that is qualified per CEQA Guidelines section 15183.5 through the year 2030 under the pending adoption as part of the LRDP amendment, GHG impact assessment in this EIR with respect to the year 2030 and 2050 reduction targets is based on guidance in the CARB's 2017 Scoping Plan Update regarding implementation of available measures to reduce GHG emissions. The 2017 Scoping Plan Update states that "there are recent examples of land use development projects in California that have demonstrated that it is feasible to design projects that achieve zero net additional GHG emissions." In the 2017 Scoping Plan Update, CARB recognizes that achieving no net increase in GHG emissions compared to existing conditions would demonstrate that a project is not contributing to climate change impacts, and is a recommended objective for land use development projects that are able to feasibly achieve this goal. Accordingly, the CPHP would result in a significant impact on the environment if GHG emissions from construction and operations of the Parnassus Heights campus site would exceed a threshold of zero net additional GHG emissions compared to the existing conditions, currently estimated below to be 125,426 MT CO_2e annually for all Scope 1, Scope 2, and Scope 3 sources, as defined above.

Construction-generated GHGs are considered in this analysis by amortizing over a period of 30 years and then added to annual operational emissions in the emission inventories compiled for this analysis.[20]

Impact Analysis

Impact GHG-1: Implementation of the CPHP would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. (Less than Significant with Mitigation)

CPHP

Construction

As discussed in Chapter 3, *Project Description*, the CPHP would provide for development of approximately 2.90 million gross square feet (gsf) of new building space, or approximately 2.04 million gsf of net new building space. CPHP Initial Phase projects, including the Irving Street Arrival, RAB, New Hospital and initial Aldea Housing Densification projects, along with other miscellaneous improvements would be completed by 2030. Over an approximately 10-year period, there would be about 1.43 million gsf of new construction, nearly 287,000 gsf of demolition, and approximately 254,000 cubic yards of excavation on the campus site. The analysis provided below indicates that amortized over 30-years, annual construction emissions would be 375 MT CO_2e/yr.

Proposed CPHP Future Phase development is assumed to be completed between approximately 2030 and the horizon year of the Plan, about year 2050. Over this approximately 20-year period, there would be an additional 1.47 million gsf of new construction, approximately 401,000 gsf of

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[20] The GHG operational analysis is consistent with the OPR's *CEQA and Climate Change Advisory Discussion Draft*. As stated therein, "when possible, lead agencies should quantify the project's construction and operational greenhouse gas emissions, using available data and tools, to determine the amount, types, and sources of greenhouse gas emissions resulting from the project." Governor's Office of Planning and Research, CEQA and Climate Change Advisory Discussion Draft, December 2018, p. 8.

demolition, and approximately 139,000 cubic yards of excavation on the campus site. The general types of construction equipment and techniques that would be used for CPHP Future Phase projects would be similar to those for the CPHP Initial Phase projects. As a result, while on balance, the overall amount of construction in the Future Phase would be roughly comparable to that which would occur in the Initial Phase, the Future Phase construction would be generally spread out over a longer duration (20-year period) that the Initial Phase construction (10-year period).

Without details of specific construction schedules, sequencing, and overlap of the CPHP Future Phase projects, it is not possible to directly calculate amortized annual GHG emissions associated with the entirety of the CPHP Future Phase. However, when considering the amount and type of CPHP Future Phase demolition and construction, and timeframe over which these activities would occur, it is expected that amortized construction emissions that would be experienced during the CPHP Future Phase may be generally comparable to those calculated for the CPHP Initial Phase projects inclusive of the New Hospital.

Operations

Area, Energy, and Indirect Sources

Operational GHG emissions associated with the CPHP would result from electrical and natural gas usage, water and wastewater transport (the energy used to pump water and wastewater to and from the campus site) and solid waste generation. However, UCSF has committed to net zero electricity by 2025 and no GHG emissions are predicted from electrical usage under full buildout of the CPHP. GHG emissions from natural gas are direct emissions resulting from on-site combustion for the CUP, heating and other purposes. GHG emissions from water and wastewater transport are also indirect emissions resulting from the energy required to transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point. Solid waste-related emissions are generated when the increased waste generated by the development under the CPHP is disposed in a landfill where it decomposes, producing methane gas.[21]

UCSF's GHGRS identifies strategies to improve efficiency of existing buildings, while new buildings are required to meet or surpass Title 24 energy efficiency standards and attain a minimum LEED silver certification or equivalent. GHG emissions from mobile transportation, water and wastewater conveyance, and solid waste were estimated using the CalEEMod model, while emissions from natural gas combustion were estimated based on existing UCSF Parnassus Heights campus site GHG inventory for the most recent inventory year (2018) and the overall increase in developed building space that would be served by the CUP.

Estimated emissions for existing conditions (2018) and under full buildout of the CPHP in year 2050 are presented in **Table 4.7-3**. Energy use (natural gas combustion at the CUP) represents approximately 68 percent of estimated campus-wide operational GHG emissions under the CPHP while mobile emissions from vehicles contributes 29 percent of the overall emissions under the CPHP. Construction-related GHG emissions were amortized over an assumed 30-year lifetime of the project and are included in the table as the BAAQMD has not adopted a separate GHG

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[21] CH_4 from decomposition of municipal solid waste deposited in landfills is counted as an anthropogenic (human-produced) GHG. (USEPA, 2006).

threshold for construction emissions. As shown in the table, campus-wide GHG emissions with the CPHP would increase by approximately 61,815 MT of CO_2e per year. Although there would be a slight decrease in the emissions per service population in 2050 compared to existing conditions, given that emissions would exceed the net zero goal of the CARB, the impact is identified as significant and mitigation measures are required.

TABLE 4.7-3
ANNUAL OPERATIONAL GHG EMISSIONS AT PARNASSUS HEIGHTS CAMPUS SITE: EXISTING AND WITH CPHP YEAR 2050

Emission Source	Emissions (metric tons year)			
	CO_2	CH_4	N_2O	Total CO_2e
Existing (2018) Conditions at Parnassus Heights Campus Site				
Mobile Sources[a]	43,266	2.32	<1	43,324
Electricity	219	0.97	1.11	221
Natural gas combustion (CUP)	79,510	1.35	3.29	79,515
Natural gas combustion (non-CUP)	668	0.01	0.01	671
Water and wastewater	155	15.9	<1	666
Solid Waste	324	19.2	<1	804
Generators	195	0.03	<1	197
Total (2018)				**125,426**
Service population	UCSF Parnassus Heights faculty, staff and students; and residents on Parnassus Heights campus site			11,287
Emissions per service population				**11.1**
Parnassus Heights Campus Site With CPHP (2050) Conditions				
Mobile Sources[a]	54,991	1.87	<1	55,038
Electricity[b]	0	0	0	0
Natural gas combustion (CUP)	128,011	2.17	5.30	128,019
Natural gas combustion (non-CUP)	1,075	0.02	0.02	1,081
Water and wastewater	239	24.5	<1	1,025
Solid Waste	452	26.7	<1	1,120
Generators	583	<1	<1	583
Amortized Construction[c]	375	<1	<1	375
Total (2050)				**187,241**
Service population	UCSF Parnassus Heights faculty, staff and students; and residents on Parnassus Heights campus site			17,212
Emissions per service population				**10.9**
Net Change from Existing				**61,815**
Significant Impact?				**Yes**

NOTE: Project CO_2 emissions estimates were made using CalEEMod v.2013.2 with updated EMFAC2017 emission factors and existing UCSF GHG inventory data. Emission calculations vary from those presented in proposed revisions to the GHGRS due to the inclusion here of all vehicle trips, and not just those associated with staff and students.

[a] Mobile emissions are calculated based on daily VMT calculated for the transportation analysis and conservatively multiplied by 365 to arrive at an annual VMT.

[b] UCSF has committed to net zero electricity by 2025 and no GHG emissions are predicted from electrical usage under full buildout of the CPHP.

[c] Construction emissions associated with future phase projects have not been included because the timing of the projects and thus the start of their amortization period is unknown but are anticipated to be comparable to those calculated for the CPHP Initial Phase projects inclusive of the New Hospital.

Feasible GHG reduction measures are recommended to be included in the GHGRS update, which build upon the strategies and measures in the UC *Sustainable Practices Policy* and 2017 GHGRS update. **Table 4.7-4** summarizes the recommended reduction measures and lists the corresponding UC *Sustainable Practices Policy* and existing GHGRS measures, where applicable. These recommended reduction measures shall be incorporated into the GHGRS update that would occur as part of the proposed Amendment to the 2014 LRDP under the CPHP. The additional inclusion of water conservation strategies has the potential to reduce indirect emissions associated with outdoor water consumption by reducing that consumption by three percent or more and is, therefore identified as CPHP Mitigation Measure GHG-1a. Additionally, GHG emissions will marginally be further reduced through implementation of CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures, CPHP Mitigation Measure AIR-2b: TDM Program Enhancements, CPHP Mitigation Measure AIR-4b: Design for Diesel Delivery Truck Emissions Minimization, and CPHP Mitigation Measure AIR-5: Implement "cool roof and pavement" design elements. Notwithstanding these additional reductions, CPHP Mitigation Measure GHG-1c is identified to reduce GHG emissions under the CPHP to a net zero increase and a less than significant impact with mitigation. To achieve the net zero increase, CPHP Mitigation Measure GHG-1c sets forth a numerical performance standard based on the existing GHG emissions inventory for the Parnassus Heights campus site and requires any GHG emissions in excess of the existing inventory of 125,426 MT CO_2e per year to be offset.

TABLE 4.7-4
SUMMARY OF RECOMMENDED GREENHOUSE GAS REDUCTION MEASURES AND UC SUSTAINABLE PRACTICES POLICY COMPLIANCE

Reduction Measure	SPP Policies	GHGRS Policies	Implemented as Part of the Project?
Energy Efficiency			
High-Efficiency Lighting: Consistent with GHGRS Strategy EN-1, UCSF would opt to install high-efficiency lighting throughout the Parnassus Heights campus site, including light-emitting diode (LED) streetlights, path lighting, emergency lights, maintenance lighting, and building lighting. High-efficiency medical exam lights and surgery room lighting could use LED or other high-efficiency technology. It would be feasible to avoid usage of fluorescent, incandescent, or high-intensity discharge (HID) light sources.	Section A	Section 5.1; Measure EN-1	Yes; CPHP considered to have net zero electricity by 2025 (see Table 4.7-3).
High-Efficiency Appliances: UCSF could establish energy efficiency criteria for appliances installed on the Parnassus Heights campus site.	Section A and B	Section 5.1; Measure EN-1	Yes; CPHP considered to have net zero electricity by 2025 (see Table 4.7-3).
Energy-Efficient Building Envelopes. Title 24 Standards are scheduled for updates and improvements every 3 years, with the ultimate goal of zero net energy. The 2019 LRDP would take proactive steps toward this advanced energy-efficiency goal by requiring all new buildings within the project area to exceed 2016 Title 24 standards.	Section A	Section 5.1; Measure EN-2	Yes; Considered in the GHG Inventory (see Table 4.7-3).
Renewable Energy			
On-Site Renewable Energy Generation: Campus design principle W6 of the CPHP identifies solar and wind energy capture as design principals to be considered in CPHP development.	Section B: B-2	Section 5.1; Measure EN-3.1	Yes; where feasible to implement.

TABLE 4.7-4 (CONTINUED)
SUMMARY OF RECOMMENDED GREENHOUSE GAS REDUCTION MEASURES AND UC SUSTAINABLE PRACTICES POLICY COMPLIANCE

Reduction Measure	SPP Policies	GHGRS Policies	Implemented as Part of the Project?
Renewable Energy (cont.)			
Off-Site Renewable Energy Generation: Through direct access, UCSF currently purchases approximated 6 percent of the electricity supplied to the Parnassus Heights campus site as renewable power. UCSF has committed to purchasing electricity that is carbon-free electrical usage to meet zero GHG electrical demand.	Section B: B-3	Section 5.1; Measure EN-3.2	Yes; Considered in the GHG Inventory (see Table 4.7-3).
Bio-Methane Fueling the Central Utilities Plant: UCSF would purchase bio-methane to address GHG emissions associated with use of natural gas at the CUP.	Section B: B-4	Section 5.1; Measure EN-3.3	No, UCSF does not currently have sufficient supplies in place and otherwise cost prohibitive at present.
On-Site Steam and Electric Cogeneration: Cogeneration systems can use a variety of fuels to generate electricity or power at the point of use, allowing the heat that would normally be lost in the power generation process to be recovered to provide needed heating	NA	NA	Yes; CUP already on campus site.
Mobile			
Bicycle Infrastructure: The CPHP would include bicycle lockers. Showers and lockers could be made available to employees in order to facilitate and encourage commuting to work on bicycles and other wheeled devices.	NA	NA (in TDM Plan)	Yes; VMT assumes mode split from existing UCSF TDM Measures and CPHP Mitigation Measure AIR-2b: TDM Program Enhancements.
Employee Trip Reduction Program: UCSF would continue to implement an its TDM Program to reduce mobile source emissions from employee commutes.	Section D	Strategy TR-1	Yes; VMT assumes mode split from existing UCSF TDM Measures and CPHP Mitigation Measure AIR-2b: TDM Program Enhancements.
Improved Walkability Design: The CPHP proposes pedestrian pathways connecting the various land uses on campus with crosswalks at major street intersections.	NA	NA	Yes; VMT assumes mode split from existing UCSF TDM Measures and CPHP Mitigation Measure AIR-2b: TDM Program Enhancements.
Neighborhood Electric Vehicles (NEV): Provide an NEV-friendly road network within the campus, including charging stations, and use an NEV fleet to shuttle visitors and employees between the various buildings on campus.	Section D	NA	No; no internal roadway system on campus.
Transit Oriented Design: The existing Parnassus Heights campus site is served by Muni light rail and busses as well as UCSF's fleet of shuttles.	NA	NA	Yes; VMT assumes mode split from existing transit options.

TABLE 4.7-4 (CONTINUED) SUMMARY OF RECOMMENDED GREENHOUSE GAS REDUCTION MEASURES AND UC SUSTAINABLE PRACTICES POLICY COMPLIANCE

Reduction Measure	SPP Policies	GHGRS Policies	Implemented as Part of the Project?
Solid Waste			
Institute a Recycling and Waste Diversion Program: The existing Parnassus Heights campus site and the CPHP include recycling containers located within public areas, and a waste diversion and recycling program could be implemented within the campus to divert all non-hazardous and non-health care related waste that can be safely recycled or composted.	Section F	NA	Yes; Considered in the GHG Inventory (see Table 4.7-3).
Water Conservation			
Water Conservation Strategies: Campus design principle WC2 of the CPHP identifies storm water capture and treatment to reduce water demand	Section I: I-1 to 5	NA	No: Available as mitigation.

NOTES: SPP = UC Sustainable Practices Policy; GHGRS = Greenhouse Gas Reduction Strategy; NA = not applicable or not included in the document.

SOURCE: ESA 2019.

CPHP Mitigation Measure GHG-1a: Emission Reduction Measures to supplement those currently included in GHGRS update that would occur as part of the proposed amendment to the 2014 LRDP under the CPHP.

The GHGRS update shall include the following measure identified in Table 4.7-4 to address long-term GHG emissions reductions:

- ***Water Conservation Strategies*:** Campus design principle WC2 of the CPHP identifies storm water capture and treatment to reduce water demand. UCSF shall amend the GHGRS to include a Water Conservation Measure based on storm water capture and the associated reduction in outdoor water demand. A year 2050 target of 3 percent reduction of overall outdoor water use shall be established.

CPHP Mitigation Measure GHG-1b: Implement CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures, CPHP Mitigation Measure AIR-2b: TDM Program Enhancements, CPHP Mitigation Measure AIR-4b: Design for Diesel Delivery Truck Emissions Minimization, and CPHP Mitigation Measure AIR-5: Implement “cool roof and pavement” design elements to further reduce emissions from individual projects and mobile sources.

CPHP Mitigation Measure GHG-1c: Monitor emissions annually and acquire carbon offset credits in conformance with CARB guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP.

As part of this mitigation measure, UCSF is making the following separate, though overlapping, GHG emission reduction commitments: (1) As a CARB-covered entity, UCSF will maintain compliance with CARB’s cap and trade program; (2) Per existing UC Policy, UCSF’s Scope 1 and Scope 2 GHG emissions shall, commencing in 2025, be entirely carbon neutral; (3) Also per existing UC Policy, commencing in 2020, UCSF's Scope 1, Scope 2, and Scope 3 emissions from commuters and air travel shall be voluntarily offset; and (4) UCSF's total GHG operational emissions from all Scope 1, 2, and 3 sources (as defined in this EIR) shall not exceed the Parnassus Heights campus's baseline emissions from these sources in 2018. Each of these commitments is described in more detail below.

Compliance with CARB's Cap and Trade Program: Any carbon offset credits purchased for the purpose of compliance with CARB's cap and trade program shall be purchased from an accredited carbon credit market. Such offset credits (or California Carbon Offsets) shall be registered with, and retired[22] by an Offset Project Registry, as defined in 17 California Code of Regulations § 95802(a), approved by the California Air Resources Board such as, but not limited to, Climate Action Reserve, American Carbon Registry or Verra (formerly Verified Carbon Standard). In order to demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 California Code of Regulations § 95802(a), UCSF shall document in its annual report: (i) the protocol used to develop those credits, and (ii) the third-party verification report concerning those credits. As and when the credits are retired, UCSF shall document in its annual report the unique serial numbers of those credits showing that they have been retired.

Compliance with UC Policy: Compliance with UC's policies for carbon neutrality by 2025 and UC's own policy to reduce Scope 1, 2, and transportation-related Scope 3 emissions below 1990 levels pursuant to AB 32 will be accomplished through reductions in direct emissions, the purchase of renewable electricity and possibly biomethane, and the purchase of carbon offset credits. UCSF will purchase voluntary carbon offset credits as the final action to reach the GHG emission reduction targets. As part of the UC Carbon Neutrality Initiative, internal guidelines have been developed to ensure that any use of offsets for this purpose will result in additional, verified GHG emissions reductions from actions that align, as much as possible, with UC's research, teaching, and public service mission. Specifically, any voluntary carbon offset credits used by UCSF to mitigate GHG emissions will:

1. Prioritize local (within the air district) and in-state offset credits over in-nation offset credits. Offset credits shall be third-party verified by a major registry recognized by CARB such as CAR (Climate Action Reserve). If sufficient local and in-state offset credits are not available, UCSF will purchase CARB conforming national offset credits registered with an approved registry.

2. Be reported publicly and tracked through the Climate Registry (TCR) as required by UC policy. TCR is a non-profit organization governed by U.S. states and Canadian provinces and territories. UCSF's TCR reports will be third-party verified and posted publicly.

Commitment to control Parnassus Heights Annual Emissions to not exceed existing baseline: UCSF shall monitor Parnassus Heights campus-wide GHG operational emissions from all Scope 1, 2 and 3 sources (as defined in this EIR) annually, commencing in 2025 upon the completion and occupancy of the first project under the

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[22] When Climate Reserve Tonnes (CRTs) are transferred to a retirement account in the Reserve System, they are considered retired. Retirement accounts are permanent and locked to prevent a retired CRT from being transferred again. CRTs are retired when they have been used to offset an equivalent ton of emissions or have been removed from further transactions on behalf of the environment.

CPHP. The estimated annual emissions shall be compared to the year 2018 baseline of 125,426 MT CO_2e per year to determine whether the emissions have increased above the baseline level. For the identified amount of exceedance of the performance standard, UCSF shall purchase carbon offset credits sufficient to maintain carbon neutrality. These offset credits shall be purchased for the types of Scope 1 and Scope 3 emissions that are already reported to and verified by a third party verification body annually, as well as for Scope 3 emissions from patient and visitor vehicle trips, indirect emissions from water and wastewater demand, and solid waste emissions, all of which are included in the EIR analysis above as required by CEQA.

Carbon offset credits used for this purpose shall originate from a voluntary carbon credit registry that TCR recognizes such as: CAR, ACR, or Verra (other registries are also applicable). Offset credits in this case shall be registered, transferred, and retired at such registries. The protocols of each registry, and UC own internal screens, shall be used to demonstrate that the carbon offset credits provided are real, permanent, additional, and have been independently verified as adhering to its applicable project protocols. For this purpose, local (within the air district) and in-state carbon offset credits shall be prioritized over in-nation offset credits. If sufficient local and in-state offset credits are not available, UCSF will purchase CARB conforming national offset credits registered with an approved registry. As and when the credits are retired, UCSF shall document in its annual report the unique identifier of those credits showing that they have been retired and accepted by TCR.

Significance after Mitigation: Less than Significant.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification

The assessment of GHG emissions from Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification projects applies a similar methodology as that applied to the assessment of the CPHP, except that the assessment of these Initial Phase projects uses a 2030 horizon year.

Estimated incremental contributions of GHG emissions from these three Initial Phase projects are presented in **Table 4.7-5**, as are existing (2018) campus site wide emissions, and year 2030 campus-wide emissions with these Initial Phase projects. As can be seen from the table, campus-wide GHG emissions with the Initial Phase projects would increase by approximately 7,666 MT of CO_2e per year. Given that emissions would exceed the net zero goal of the CARB, the impact of the Initial Phase projects is identified as significant and mitigation measures are required.

Consequently, GHG emissions associated with the Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification projects, would result in a significant impact on the environment, which would be reduced to a less than significant level with mitigation.

Mitigation: Implement CPHP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c**.**

TABLE 4.7-5
ANNUAL OPERATIONAL GHG EMISSIONS: EXISTING AND YEAR 2030 WITH IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA HOUSING DENSIFICATION

Emission Source	Emissions (metric tons year)			
	CO$_2$	CH$_4$	N$_2$O	Total CO$_2$e
Existing (2018) Conditions for Parnassus Heights Campus Site				
Mobile Sources[a]	43,266	2.32	<1	43,324
Electricity	219	0.97	1.11	221
Natural gas combustion (CUP)	79,510	1.35	3.29	79,515
Natural gas combustion (non-CUP)	668	0.01	0.01	671
Water and wastewater	155	15.9	<1	666
Solid Waste	324	19.2	<1	804
Generators	195	0.03	<1	197
Total (2018)				**125,426**
Year 2030 Contributions from Irving Street Arrival, RAB, and Initial Aldea Housing Densification Projects				
Mobile Sources[a]	5,500	<1	<1	5,504
Electricity[b]	0	0	0	0
Natural gas combustion (CUP)	1,590	0.03	<1	1,590
Natural gas combustion (other)	423	<1	<1	425
Water and wastewater	45.1	4.63	<1	193
Solid Waste	17.4	1.03	<1	43.2
Generators	32.1	<1	<1	32.1
Construction (Amortized 30 years)				128
Total Contribution (2030)		–	–	7,787
Service population Increase	UCSF Parnassus Heights faculty, staff and students; and residents on Parnassus Heights campus site			4,224
Emissions per service population				1.8
Parnassus Height Campus Site Year 2030 Emissions with Irving Street Arrival, RAB, and Initial Aldea Housing Densification				
Mobile Sources[a]	48,766	2.32	<1	48,828
Electricity[b]	0	0	0	0
Natural gas combustion (CUP)	81,100	1.35	3.29	81,105
Natural gas combustion (other)	1,091	0.01	0.01	1,096
Water and wastewater	200	20.5	<1	859
Solid Waste	341	20.2	<1	847
Generators	227	0.03	<1	229
Construction (Amortized 30 years)				128
Total (2030)		–	–	133,092
Net Change from Existing				**7,666**
Achieve Net Zero Increase?				No
Significant Impact?				Yes

NOTE: Project CO$_2$e emissions estimates were made using CalEEMod v.2013.2.

[a] Mobile emissions are calculated based on daily VMT calculated for the transportation analysis and conservatively multiplied by 365 to arrive at an annual VMT.

[b] UCSF has committed to net zero electricity by 2025 and no GHG emissions are predicted from electrical usage under buildout of the Initial Phase Projects.

SOURCE: ESA 2020.

Initial Phase Improvements

As described in Chapter 3, *Project Description*, Initial Phase improvements are also proposed that would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. These Initial Phase improvements would generate incremental construction-related GHG emissions depending on the timing of implementation, but are not expected to substantially contribute to those emissions calculated above for the Initial Phase projects. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary, such as streetscape, utility or community investments, may involve the cooperation of the City of San Francisco and, as public works projects, would be subject to the City of San Francisco's Clean Construction Ordinance which requires the use of biodiesel (B20) in construction equipment.

Mitigation: None required.

Impact GHG-2: Implementation of the CPHP would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (Less than Significant)

CPHP, including Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

The 2014 LRDP included a GHGRS to ensure that the LRDP was implemented in alignment with UC *Sustainable Practices Policy*, and to fulfill the GHG reduction requirements of the State of California Assembly Bill 32 (AB 32): the California Global Warming Solutions Act of 2006. Since the adoption of the 2014 LRDP by the Regents, the University of California Office of the President further identified a UC policy goal to reach climate neutrality from Scopes 1 and 2 sources by 2025. As discussed in Chapter 3, *Project Description*, an update to the GHGRS would be prepared as part of a proposed amendment to the LRDP that would incorporate CPHP construction and operations emissions.

In addition, the updated GHGRS would address UCSF's achievement of goals set forth in the adopted Carbon Neutrality Initiative (CNI), which has goals more stringent than the statewide target of achieving 80 percent below 1990 emission levels by 2050. In compliance with the *Sustainable Practices Policy*, as well as the CNI, UCSF currently undergoes annual inventories of GHG emissions for Scope 1, 2, and 3 emissions to monitor GHG reduction progress.

The Parnassus Heights campus site is making substantial efforts to develop pathways to offset carbon emissions that would contribute to achieving the CNI goals by offsetting carbon emissions. To offset the Scope 1 (direct and controlled) and Scope 2 (indirect) emissions, the first strategy is to reduce energy demand through investments in achieving deep energy efficiency of the buildings and facilities on campus. All new buildings constructed under the CPHP would meet or surpass Title 24 energy efficiency standards and attain a minimum LEED silver certification or equivalent.

A second strategy is the UC Regents Direct Access Program and purchase of carbon-free electricity, which contributes to achieving carbon neutrality in Scope 2 (indirect) emissions. As of 2018, UCSF purchases approximated 6 percent of the electricity supplied to the Parnassus Heights campus site as renewable power. UCSF has committed to purchasing electricity that is carbon-free by 2025.

After implementing these strategies (maximizing energy efficiency across campus systems and operations and purchasing carbon-free renewable energy), annual inventories of GHG emissions for Scope 1, 2, and 3 emissions as defined for this EIR would be completed by campus staff and verified by a qualified verification process through TCR. Starting in 2025, the campus would offset any remaining Scope 1 and Scope 2 emissions by purchasing carbon credits on the accredited voluntary carbon credit market in fulfillment of the UC CNI Policy. Additionally, CPHP Mitigation Measure GHG-1c will be implemented which requires, among other things, that the operational emissions be monitored annually and that carbon offsets be acquired to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP. This will further offset remaining emissions inclusive of emissions from visitor/patient trips and indirect emissions from water and wastewater demand and solid waste emissions to the extent these exceed existing emissions.

After validating the annual inventory, UCSF would purchase carbon credits through the Climate Action Reserve, American Carbon Registry, Verra, or other accredited voluntary markets to offset the remaining Scope 1 emissions. The Parnassus Heights campus site would be actively involved in this effort and contribute to the implementation of the UC system-wide CNI. Compliance with the *Sustainable Practices Policy* and CNI ensures that the campus is implementing the UCSF GHGRS. Therefore, the CPHP would not conflict with any adopted plans, policies, or regulations for the reduction of GHG emissions. The impact would be less than significant.

The CPHP is anticipated to reach buildout in 2050. The GHGRS is currently being updated to reflect 2015 updates to the *Sustainable Practices Policy* which requires each campus to establish a goal of 30 percent of commutes by zero emissions vehicles in efforts to commit toward continued and sustained GHG reductions through 2050, which is the horizon year of State reduction goal. The Parnassus Heights campus site would continue to develop and apply the UCSF GHGRS through buildout of the campus, which would implement long-term GHG reductions through sustainable design, renewable energy generation, electrification of the transportation fleet, sustainable water use, and zero waste (for non-health care uses) programs as described in the GHGRS. In addition, UCSF will continue to report annual inventories of GHG emissions into perpetuity to monitor progress and ensure achievement of the CNI reduction targets Scope 1, 2, and 3 emissions in 2050.

Consistency with Other Plans and Policies

As noted earlier, CARB’s 2017 Scoping Plan Update describes how the State plans to achieve the 2030 GHG emission reduction goal for California of 40 percent below 1990 levels by 2030 as mandated by SB 32. By implementing the updated GHGRS and CPHP Mitigation Measures GHG-1a through 1c, thereby achieving consistency with UCSF’s CNI, the CPHP would be consistent with CARB's 2017 Scoping Plan Update and with Executive Order S-3-05, which established a goal of reducing California's GHG emissions to 80 percent below the 1990 level by the year 2050.

The CPHP would also be consistent with *Plan Bay Area 2040*, which includes the Regional Transportation Plan, and was adopted as the Bay Area's Sustainable Communities Strategy pursuant to California Senate Bill 375. P*lan Bay Area 2040*'s core strategy is encouraging growth in existing communities along the existing transportation network, focusing new development in Priority Development Areas (PDAs) and Transit Priority Areas (TPAs) within urbanized centers where there is more public transit and other mobility options available to reduce driving by cars and light trucks. In addition to significant transit and roadway performance investments to encourage focused growth, *Plan Bay Area 2040* directs funding to neighborhood active transportation and complete streets projects, climate initiatives, lifeline transportation and access initiatives, pedestrian and bicycle safety programs, and PDA planning. The proposed project is consistent with *Plan Bay Area 2040* by virtue of being located within a TPA, which is defined as an area within one-half mile of an existing or planned major transit stop (Public Resources Code Section 21099(a)(7)), where "major transit stop" is defined as a site containing any of the following: an existing rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods (Public Resources Code Section 21064.3).

Additionally, UCSF's existing TDM strategies and CPHP Mitigation Measure AIR-2b would be implemented which include programs to encourage more employees, visitors, and patients to shift from driving to other modes of travel. These programs would consist of strategies that encourage telecommuting and telehealth; encourage non-automobile modes, such as discounted transit tickets and preferential carpool parking; and disincentivize travel by automobile by effectively managing parking permits and parking fees.

Therefore, the development of the Parnassus Heights campus site under the CPHP would be consistent with the State's efforts toward achieving 2050 reduction target. This impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Climate change is the cumulative effect of all natural and anthropogenic sources of GHGs accumulated on a global scale. The GHG emissions from an individual project, even a very large development project, would not individually generate sufficient GHG emissions to measurably influence global climate change, and thus the assessment of GHG emissions impacts is inherently cumulative.

The analysis in Impact GHG-1 uses a net zero increase threshold over existing emissions. Consideration of a project's climate change impact, therefore, is essentially an analysis of a project's contribution to a cumulatively significant global impact through its emission of GHGs. While it is possible to examine the quantity of GHGs that would be emitted from individual project sources, it is not currently possible to link these GHGs emitted from a specific source or location to particular global climate changes.

Both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate. (BAAQMD, 2012; CAPCOA, 2008). Therefore, the evaluation of cumulative GHG impacts presented above evaluates whether the proposed CPHP would make a considerable contribution to cumulative climate change effects.

As such, the analysis in Impact GHG-1 considers the potential cumulative impacts of the CPHP related to GHG emissions. Implementation of the CPHP, including the updated GHGRS with additions required by CPHP Mitigation Measure GHG-1a, would result in decreased annual GHG emissions compared to existing conditions. As such, implementation of the CPHP would not be cumulatively considerable.

4.7.4 References

American College & University, 2007. Text of the American College & University Presidents Climate Commitment.

Anderegg, William R. L., J.W. Prall, J. Harold, S.H., Schneider, 2010. Expert Credibility in Climate Change; Proceedings of the National Academy of Sciences of the United States of America. 2010; 107:12107-12109.

Bay Area Air Quality Management District (BAAQMD), 2010. California Environmental Quality Act Air Quality Guidelines, May 2010. Available at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed June 8, 2020.

BAAQMD, 2012. California Environmental Quality Act Air Quality Guidelines, May 2012. Available at: http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en. Accessed June 8, 2020.

BAAQMD, 2017. California Environmental Quality Act Air Quality Guidelines, May 2017. Available at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed June 8, 2020.

California Air Pollution Control Officers Association, (CAPCOA), 2008. CEQA and Climate Change. January. p. 32.

California Air Resources Board (CARB), 2008. Climate Change Scoping Plan, December 2008. Available at: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed June 8, 2020.

CARB, 2017. California's 2017 Climate Change Scoping Plan. November 2017.

CARB, 2018. SB 375 Regional Greenhouse Gas Emissions Reduction Targets. Available at: https://www.arb.ca.gov/cc/sb375/finaltargets2018.pdf. Accessed March 11, 2019.

CARB, 2019. California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals. January 2019. Available at: https://ww2.arb.ca.gov/resources/documents/carb-2017-scoping-plan-identified-vmt-reductions-and-relationship-state-climate. Accessed June 8, 2020.

CARB, 2020. 2019 California Greenhouse Gas Emission Inventory. Available at: http://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed June 8, 2020.

California Building Standards Commission, 2016. 2016 California Green Building Standards Code (Part 11 of Title 24). Available at: https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen. Accessed June 8, 2020.

California Department of Finance, 2018a. E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2018, with 2010 Benchmark. May 1, 2018. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/. Accessed June 8, 2020.

California Department of Finance, 2018b. Gross State Domestic Product 1963 to 2018. Available at: http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross_State_Product/. Accessed June 8, 2020.

California Energy Commission (CEC), 2012. California Climate Change Center. *Our Changing Climate 2012*. Available online at: http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf. Accessed June 8, 2020.

CEC, 2015. 2016 Building Energy Efficiency Standards for Residential and Nonresidential Buildings. June 2015.

California Environmental Protection Agency (CalEPA), 2013. Preparing California for Extreme Heat: Guidance and Recommendations. October 2013.

California Natural Resources Agency (CNRA), 2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008.

CNRA, 2012. California Adaption Planning Guide: Planning for Adaptive Communities. Available at: http://resources.ca.gov/docs/climate/01APG_Planning_for_Adaptive_Communities.pdf. Accessed June 8, 2020.

CNRA, 2014. Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy. July 2014. Available at: https://www.adaptationclearinghouse.org/resources/safeguarding-california-reducing-climate-risk-2014-update-to-the-2009-ca-climate-adaptation-strategy.html. Accessed June 12, 2020.

CNRA, 2018a. Safeguarding California Plan: 2018 Update. January 2018.

CNRA, 2018b. CEQA Guidelines Amendments, Sections 15064.4, 15183.5, 15364.5. November 2018. Available at: http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf. Accessed June 8, 2020.

CalRecyle, 2019. Jurisdiction Diversion/Disposal Rate Summary (2007 - Current); Per Capita Disposal Rates Trends; City of Oakland. Available at: https://www.calrecycle.ca.gov/LGCentral/DataTools/Reports/. Accessed: May 10, 2019.

Caltrans, 2016. Sustainable Freight Action Plan. Available: http://dot.ca.gov/hq/tpp/offices/ogm/cs_freight_action_plan/theplan.html. July 2016. Accessed June 8, 2020.

Center for Climate and Energy Solutions. What is Black Carbon? April 2010. Available online at: https://www.c2es.org/site/assets/uploads/2010/04/what-is-black-carbon.pdf. Accessed June 8, 2020.

Climate Central, 2019. 2018 Global Temperature Review: Land & Ocean. Published February 6, 2019.

Intergovernmental Panel on Climate Change (IPCC), 2007. Climate Change 2007 Synthesis Report.

IPCC, 2014. Climate Change 2014 Synthesis Report. Available at: http://ipcc.ch/report/ar5/syr/. Accessed June 8, 2020.

Kenward, Alyson, PhD, Dennis Adams-Smith, Urooj Raja, 2013. Wildfires and Air Pollution: The Hidden Health Hazards of Climate Change. Climate Central. Available at: http://assets.climatecentral.org/pdfs/WildfiresAndAirPollution.pdf. Accessed June 8, 2020.

Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. Plan Bay Area. Adopted July 18, 2013. Available at: http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/Plan_Bay_Area.pdf. Accessed June 8, 2020.

MTC and ABAG, 2017. Plan Bay Area 2040, Adopted July 26, 2017. Available at: https://www.planbayarea.org/. Accessed June 8, 2020.

MTC, 2020. *Plan Bay Area 2050: Draft Blueprint Growth Geographies for Study*. Available at: https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=a077e9adab904055a56aa088ac0c1122. Accessed June 23, 2020.

National Oceanic and Atmospheric Administration (NOAA), 2019. Assessing the U.S. Climate in 2018. Published February 6, 2019. Available at: https://www.ncei.noaa.gov/news/national-climate-201812. Accessed June 8, 2020.

Office of Planning and Research (OPR), 2018a. Discussion Draft: CEQA and Climate Change Advisory. December. Available at: http://opr.ca.gov/docs/20181228-Discussion_Draft_Climate_Change_Adivsory.pdf. Accessed June 8, 2020.

OPR, 2018b. Technical Advisory for Evaluating Transportation Impacts in CEQA. December 2018.

San Francisco Department of the Environment (SF DOE), 2013. San Francisco Climate Action Strategy, 2013 Update. Available at: https://sfenvironment.org/sites/default/files/fliers/files/sfe_cc_climateactionstrategyupdate2013.pdf. Accessed June 8, 2020.

SF DOE, 2020. San Francisco's Carbon Footprint. Available at: https://sfenvironment.org/carbon-footprint. Accessed May 18, 2020.

University of California, San Francisco (UCSF), 2017. UCSF Climate Action Plan – Greenhouse Gas Reduction Strategy. April 2017.

U.S. Environmental Protection Agency (USEPA), 2012. United States Environmental Protection Agency and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. EPA-420-F-12-051. August 2012. Available at: https://nepis.epa.gov. Accessed: June 8, 2020.

USEPA, 2019. Inventory of U.S. Greenhouse Gas Emissions and Sinks Fast Facts. Available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-fast-facts. Accessed June 8, 2020.

Westerling, Anthony LeRoy. 2018. Wildfire Simulations for the Fourth California Climate Assessment: Projecting Changes in Extreme Wildfire Events with a Warming Climate. California's Fourth Climate Change Assessment, California Energy Commission. Publication number: CCCA4-CEC-2018-014. August 2018.

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4.8 Hazards and Hazardous Materials

This section describes and evaluates potential for construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts related to hazards and hazardous materials. The section contains: a description of the existing land uses of the campus site and surrounding areas as they pertain to hazardous materials use; a discussion of handling (including transport and disposal) and storage of hazardous materials, emergency response planning and wildfire management at the campus site; a summary of the University, federal, State, and local regulations governing these activities; an analysis of the potential impacts related to hazards and hazardous materials, emergency response planning and wildfire management associated with the implementation of the CPHP, as well as identification of potentially feasible measures that could mitigate significant impacts.

The analysis of hazardous materials included in this section was developed based on publicly available information from the State Water Resources Control Board (SWRCB), California Department of Toxic Substances Control (DTSC), and California Department of Forestry and Fire Protection (CAL FIRE).

4.8.1 Environmental Setting

The study area for evaluation of hazards and hazardous materials impacts includes the campus site and surrounding areas. The evaluation considers an environmental database search that extends approximately 0.25 miles from the campus site boundary; however, it focuses on the campus site and the immediately adjacent area. Sites beyond the immediately adjacent area would have a remote chance of affecting subsurface materials beneath the campus site since releases of hazardous materials tend to be localized.

In addition, a radius of up to 0.25 miles from the campus site boundary is considered relative to proximity to schools and the radius of up to two miles is similarly considered relative to proximity to airports, both in accordance with the CEQA Guidelines.

Definitions and Background

Hazardous Materials

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (California Health and Safety Code Chapter 6.95, section 25501(o)). The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and State laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been spent, discarded, discharged, spilled, contaminated, or are being stored until they can be disposed of properly (Title 22 California Code of Regulations [CCR] section 66261.10). Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific criteria established in sections 66261.20 through 66261.24 of the CCR Title 22. Hazardous substances are regulated by multiple agencies, as described in the Regulatory Setting below, and cleanup requirements of hazardous releases are determined on a case-by-case basis according to the agency (e.g., DTSC or SWRCB) with lead jurisdiction over a contaminated site.

Potential Receptors/Exposure

The sensitivity of potential receptors in the areas of known or potential hazardous materials contamination is dependent on several factors, the primary factor being the potential pathway for human exposure. Exposure pathways include external exposure, inhalation, and ingestion of contaminated soil, air, water, or food. The magnitude, frequency, and duration of human exposure can cause a variety of health effects, from short-term acute symptoms to long-term chronic effects. Potential health effects from exposure can be evaluated in a health risk assessment. The principal elements of health risk assessments typically include:

- Evaluation of the fate and transport processes for hazardous materials at a given site;
- Identification of potential exposure pathways;
- Identification of potential exposure scenarios;
- Calculation of representative chemical concentrations; and
- Estimation of potential chemical uptake.

Sensitive Receptors

On the Parnassus Heights campus site, existing sensitive receptors include the UCSF hospitals; and UCSF campus housing on Third and Fifth Avenues, on Irving Street, and the Aldea Housing complex located in the southeast portion of the campus site. There are also two child care centers within the Parnassus Heights campus site: the Kirkham Child Development Center at 10 Kirkham Street, and the UCSF Marilyn Reed Lucia Child Development Center at 601 Parnassus Avenue.

Off-campus receptors (residences) abut the western, northern and southern campus site boundaries. There are three public schools operated by the San Francisco Unified School District within a quarter mile of the Parnassus Heights campus site boundary: Independence High School is located at 1350 7th Avenue, approximately 500 feet northwest of the campus site boundary; Grattan Elementary School (which also contains Grattan Nursery and School-Age Children's Center) is located at 165 Grattan Avenue, approximately one quarter mile east of the campus site boundary; and Clarendon Alternative Elementary School is located at 500 Clarendon Avenue, approximately 1,100 feet south of the campus site boundary. There are also a number of private child care centers within one-quarter mile of the campus site: the Stepping Stones Preschool is located at 1329 7th Avenue, approximately 800 feet northwest of the campus site boundary; the Haight Ashbury Community Nursery School is located at 1180 Stanyan Street, approximately

1,000 feet east of the campus site boundary; and the ABC Bay Area Child Care facility is located at 115 Lawton Street, approximately 900 feet west of the campus site boundary.

Hazardous Building Materials Associated with Demolition and Renovation

Parnassus Heights is the oldest campus site within the UCSF campus system, and as a result, the age of some of the existing buildings and structures increases the likelihood for building materials to contain hazardous components [e.g., lead-based paint (LBP), asbestos-containing materials (ACMs), mercury, and polychlorinated biphenyls (PCBs)].

Lead and Lead-Based Paint (LBP)

Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils around buildings and structures painted with LBP. Old peeling paint can contaminate near surface soil, and exposure to residual lead can have adverse health effects, especially in children. LBP was phased out in the United States beginning with the passage of the Lead-Based Paint Poisoning Prevention Act in 1971. Prior to the US Environmental Protection Agency (US EPA) ban in 1978, LBP was commonly used on interior and exterior surfaces of buildings. Structures built prior to 1978 may have LBP and some paints manufactured after 1978 for industrial uses legally contain more than 0.06 percent lead. Pathways of exposure to lead include inhalation, ingestion, dermal absorption, or absorption from retained/embedded leaded foreign body. Exposure to lead can result in severe health effects; children are particularly susceptible to potential lead-related health problems because it is easily absorbed into developing systems and organs.

Asbestos

Asbestos, a naturally occurring fibrous material, was used as a fireproofing and insulating agent in building construction before such uses were terminated due to liability concerns in the late 1970s. From 1973 through 1990, several laws were passed banning the manufacture and use of ACM (USEPA, 2019a). Some materials are still allowed to contain asbestos. The demolition of structures with ACM can result in airborne fibers. Inhalation of the tiny asbestos fibers can lead to lung disease. Structures that predate 1981 and structural materials installed before 1981 are presumed to potentially contain asbestos. Because it was widely used prior to the discovery of its health effects, asbestos can be found in a variety of building materials and components such as insulation, walls and ceilings, floor tiles, and pipe insulation. Friable (easily crumbled) materials are particularly hazardous because inhalation of airborne fibers is the primary mode of asbestos entry into the body. Non-friable asbestos is generally bound to other materials such that it does not become airborne under normal conditions. Non-friable asbestos and encapsulated friable asbestos do not pose substantial health risks. Asbestos exposure is a human respiratory hazard. Asbestos-related health problems include lung cancer and asbestosis.

Mercury

Spent fluorescent light tubes commonly contain mercury vapors, the exposure to which can have both long-term (e.g., anxiety, loss of appetite, fatigue, changes in vision or hearing) and/or short-term (e.g., sore throat, shortness of breath, chest pain, headache, vision problems) health effects. In February 2004, regulations took effect in California that classified all fluorescent lamps and tubes as hazardous waste. When these lamps or tubes are broken, mercury is released to the environment and can become airborne. When inhaled, mercury vapors can be absorbed through the lungs and into the bloodstream. Released mercury that is not vaporized can also be washed by rain water and into waterways. Mercury switches, which contain small amounts of mercury, may also be present in some buildings.

Polychlorinated Biphenyls (PCBs)

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment such as transformers and capacitors. After PCBs were determined to be carcinogenic in the mid-to-late 1970s, the US EPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment (USEPA 2019b). Fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit. PCBs are highly persistent in the environment, and exposure to PCBs has been demonstrated to cause cancer, as well as a variety of other adverse health effects. Occupational exposure to PCBs occurs mainly through inhalation and dermal contact routes.

Soil and Groundwater Contamination

Medical offices, research facilities and hospitals as well as many commercial and light industrial businesses use materials and generate wastes that are considered hazardous by federal and State standards. Such businesses and practices are required to contain, manage, and transport their hazardous materials in conformance with established State regulations to ensure hazardous materials that can become a health hazard are not released to subsurface soils and groundwater or create exposure risks to the public.

Underground storage tanks (USTs), in particular, are a common contamination source in urban areas. Until the mid-1980s, most USTs were made of single-walled bare steel, which can corrode over time and result in leakage. Faulty installation or maintenance procedures can also lead to UST leakage, as well as to potential releases associated with spills. Recently revised UST regulations have substantially reduced the incidents of leakage and consequential soil and groundwater contamination from new UST systems.

Campus Site

The majority of existing development is located within the campus core in the north portion of the campus site. Current campus operations include the storage, use, and disposal of variable quantities of hazardous materials. **Table 4.8-1** presents a list of representative hazardous materials stored and used at the campus site.

TABLE 4.8-1
REPRESENTATIVE HAZARDOUS MATERIALS USED AT PARNASSUS HEIGHTS CAMPUS SITE

Substance	Examples	Uses	Hazards
Solvents	Alcohols, ether, ethers, toluenes, and hexanes	Lab chemicals, paint removers, degreasers, and pesticides	Flammable, some explosive; toxic; damage to skin and respiratory tract; systematic damage to liver, kidneys, and nervous system.
Oxidizers	Hydrogen peroxide, perchloric acid, nitric acid, silver nitrate, potassium dicholorate, and ammonium persulfate	Hazardous medications, lab chemicals	Stimulates combustion of organic materials
Compressed Gases	Carbon dioxide, nitrogen, acetylene, oxygen, compressed air, refrigerants and miscellaneous small quantities and mixtures.	Hazardous medical gases, labs, facility systems, welding, and other campus shops	Flammable, some explosive (with potential for propellant effect, and some toxic)
Corrosives	Hydrochloric, nitric, sulfuric, and acetic acid, sodium hydroxide, and ammonium hydroxide	Hazardous medications, lab chemicals, cleaning agents, paint and paint thinners, Freon refrigerants, pesticides, and herbicides	Damage to skin and respiratory tract; some react to produce fire, explosion, or toxic fumes
Reactives	Alkyl metals (sodium potassium), and hydrides	Lab chemicals	Explosive (with or without detonation); toxic fumes; and explodes with exposure to water
Toxics	Chemotherapy drugs and bulk wastes, RCRA hazardous drugs and wastes, heavy metals, chlorinated hydrocarbons, arsenic, and cyanide compounds	Hazardous medications, lab chemicals, pesticides, photographic chemicals, and paints or dyes	Capable of causing acute or chronic systemic damage or death, cancer, infertility, and birth defects
Biohazards	Waste containing blood, bodily fluids, used sharps, pharmaceutical waste, trace chemotherapy drug waste, and other potentially infectious materials, bacteria and viruses	Regulated medical waste from the hospital and clinics and research laboratories	Capable of producing diseases
Radioactivity	Radionuclides (radioisotopes)	Labs and medical center	Capable of causing acute or chronic systematic damage, cancer, infertility, and birth defects
Fuels	Gasoline, diesel, and waste oil	Campus maintenance (grounds and building) and vehicles	Flammable, some explosive; toxic; damage to skin and respiratory tract; and produces fire/explosions

SOURCE: UCSF, 2019

The Parnassus Heights campus site has five 30,000 gallon single-walled diesel USTs located below Medical Center Way that serve the Central Utility Plant (CUP) generators and boilers in emergency situations when normal electrical services are interrupted. These storage tanks do not meet current code requirements and must be decommissioned by December 31, 2025. The 2014 LRDP authorized updating and improving a number of utilities and infrastructure at the Parnassus Heights campus site, including the replacement of these diesel tanks with new code-compliant tanks.

In a review of available environmental databases, there were two cases for the Parnassus Heights campus site (at the EHS building at 50 Medical Center Way, and 315 Parnassus Avenue) identified either on the Geotracker database maintained by the State Water Resources Control Board (SWRCB), and/or the Envirostor database maintained by Department of Toxic Substances Control (DTSC) (SWRCB, 2019; DTSC, 2019). Both cases predated the 2014 LRDP, and were closed in accordance with applicable regulatory agency oversight, with no further action required.

Surrounding Area

The database searches indicated above were also expanded to include a quarter mile radius from the campus site boundary for release sites that may have had the potential to adversely affect soil and groundwater beneath the campus site. In total, there were seven database listings on the Geotracker database in a northwest to northeast direction from campus site boundary. All but one of these cases were closed, with no further investigation or remediation required. The single open case, for a listing located at 250 Irving Street, pertains to a UST that was removed on May 23, 2018 and a release of petroleum hydrocarbons was identified as requiring further investigation (SFDPH, 2018). Based on topography, this listing is estimated to be in a downgradient direction from the campus site, and consequently, would not likely have the potential to migrate beneath the campus site. There were no Envirostor database listings within 0.25 miles of the campus site boundary (DTSC, 2019).

Naturally Occurring Asbestos

San Francisco is among the identified counties where ultramafic bedrock materials are present and have the potential for naturally occurring asbestos fibers. According to statewide mapping, the campus site appears to be located east of any mapped ultramafic bedrock units for the City of San Francisco (CDMG, 2000) or where reported asbestos occurrences have been mapped (USGS, 2011). According to a previous geotechnical report for the upland slope stability within the Mount Sutro Open Space Reserve (Reserve), the bedrock of the area consists of Franciscan Complex bedrock (chert, greenstone and meta-sandstone and shale) (Rutherford & Chekene, 2006).[1] Naturally occurring asbestos fibers are more associated with the mineral chrysotile commonly found in serpentinite.

Airports

There are no public use airports within two miles of the City of San Francisco. San Francisco International Airport and Oakland International Airport are over 8 and 12 miles from the campus site, respectively.

Wildland Fire

A wildland fire is any non-structure fire that occurs in vegetation or natural fuels. According to CAL FIRE's Fire Hazard Severity Zone Map of San Francisco County, the Mount Sutro Open Space Reserve is designated as Local Responsibility Area (LRA) moderate fire hazard severity zone (CAL FIRE, 2007).

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[1] Greenstone refers to any compact dark-green altered or low-grade metamorphosed basic igneous rock that owes to its green color. It is distinct from serpentinite which is also green and can contain naturally occurring asbestos fibers.

In September 2018, UCSF began implementing the Mount Sutro Open Space Reserve Vegetation Management Plan, a 20-year phased plan to improve ecosystem health, regenerate the forest, maintain and ensure public access to the Reserve, and minimize fire risk. In accordance with UCSF's established risk-reduction program, the Vegetation Management Plan is intended to protect the safety of Reserve users and adjacent structures with vegetation management to reduce the risk of both tree failure and fire. Under the Vegetation Management Plan, vegetation management is conducted in accordance with guidelines established by the San Francisco Fire Department and Cal Fire to create and maintain defensible space between vegetation and buildings.

In addition, UCSF Facilities Services conducts ongoing, regular maintenance in the Reserve including: removal of storm debris, downed trees or branches, hazardous trees, trash, campsites; managing overgrown vegetation, including near roads, trails, parking areas, walkways, stairs, and buildings; scheduled tree pruning every two years or as necessary to keep buildings, roads and pathways safe.

4.8.2 Regulatory Setting

Federal

The primary federal agencies with responsibility for hazards and hazardous materials management include the US EPA, US Department of Labor Occupational Safety and Health Administration (Fed/OSHA), and the US Department of Transportation (DOT). Federal laws, regulations, and responsible agencies are summarized in **Table 4.8-2**.

State agencies often have either parallel or more stringent rules than federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of federal law and its enforcement are discussed under either the State or local agency section.

State

California Environmental Protection Agency and Unified Program

California's Secretary for Environmental Protection has established a unified hazardous waste and hazardous materials management regulatory program (Unified Program) as required by Senate Bill 1082 (1993).

The California Environmental Protection Agency (Cal/EPA) oversees the implementation of the Unified Program. The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspection and enforcement activities of six environmental and emergency response programs. The state agencies responsible for these programs set the standards for their respective programs while local governments implement the standards.

TABLE 4.8-2
FEDERAL LAWS AND REGULATIONS RELATED TO HAZARDS AND HAZARDOUS MATERIALS MANAGEMENT

Classification	Federal Law or Responsible Federal Agency	Description
Hazardous Waste Handling	Resource Conservation and Recovery Act of 1976 (RCRA)	Under RCRA, the US EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from "cradle to grave."
	Hazardous and Solid Waste Act	Amended RCRA in 1984, affirming and extending the "cradle to grave" system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes.
	Toxic Substances Control Act (TSCA)	Code of Federal Regulations Title 40 Chapter 1, Subchapter R – Toxic Substances Control Act – Part 761 Polychlorinated Biphenyls (PCBs) – covers the identification and sampling requirements for PCBs for disposal purposes.
Hazardous Materials Management	Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) U.S. Department of Health and Human Services	
Hazardous Materials Transportation	US Department of Transportation (DOT)	DOT has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CFR).
	US Postal Service (USPS)	USPS regulations govern the transportation of hazardous materials shipped by mail.
Occupational Safety	Occupational Safety and Health Act of 1970	Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR).
Structural and Building Components (Lead-based paint, polychlorinated biphenyls, and asbestos)	Toxic Substances Control Act	Regulates the use and management of polychlorinated biphenyls in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items.
	US EPA	The US EPA monitors and regulates hazardous materials used in structural and building components and their effects on human health.

The Unified Program is implemented at the local level by 86 government agencies certified by the Secretary of Cal/EPA. These Certified Unified Program Agencies (CUPAs) have typically been established as a function of a local environment health or fire agency. Some CUPAs also have contractual agreements with one or more other local agencies called "participating agencies (PAs)," which implement one or more program elements, under the oversight of the CUPA.

The state agency partners involved in the Unified Program have the responsibility of setting program element standards, working with Cal/EPA on ensuring program consistency and providing technical assistance to the CUPAs and PAs. The following state agencies are involved with the Unified Program:

- **California Environmental Protection Agency (Cal/EPA).** The Secretary of the California Environmental Protection Agency is directly responsible for coordinating the administration of the Unified Program. The Secretary certifies Unified Program Agencies. The Secretary has certified 86 CUPAs to date. These 86 CUPAs carry out the responsibilities previously handled by approximately 1,300 state and local agencies.

- **Department of Toxic Substances Control (DTSC).** The Department of Toxic Substances Control provides technical assistance and evaluation for the hazardous waste generator program including onsite treatment (tiered permitting).
- **Governor's Office of Emergency Services (OES).** The Governor's Office of Emergency Services is responsible for providing technical assistance and evaluation of the Hazardous Material Release Response Plan (Business Plan) Program, the California Accidental Release Response Plan (CalARP) Programs, and carrying out FEMA requirements to prepare the State Multi-Hazard Mitigation Plan also known as the State Hazard Mitigation Program.
- **Office of the State Fire Marshal (OSFM).** The Office of the State Fire Marshal is responsible for ensuring the implementation of the Aboveground Petroleum Storage Act (APSA). They are also responsible for oversight of the Hazardous Material Management Plans (HMMPs) and the Hazardous Material Inventory Statement Programs. These programs tie in closely with the Business Plan Program.
- **State Water Resources Control Board (SWRCB).** The State Water Resources Control Board provides technical assistance and evaluation for the underground storage tank program.

Hazardous Waste Control Act

The hazardous waste management program enforced by DTSC was created by the Hazardous Waste Control Act (California Health and Safety Code Section 25100 et seq.), which is implemented by regulations described in CCR Title 22, Social Security, Division 4.5, Environmental Health Standards for the Management of Hazardous Waste. This act implements the RCRA "cradle-to-grave" waste management system in California, but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, transportation and permitting requirements, as well as in its penalties for violations. The act also exceeds federal requirements by mandating the recycling of certain wastes, requiring certain generators to document a hazardous waste source reduction plan, requiring permitting for federally exempt treatment of hazardous wastes by generators, and implementing stricter regulation of hazardous waste facilities.

California Department of Industrial Relations, Division of Occupational Safety and Health

The California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are more stringent than federal OSHA regulations and are presented in CCR Title 8. Standards for workers dealing with hazardous materials include practices for all industries (General Industry Safety Orders); specific practices are described for construction and hazardous waste operations and emergency response. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices. CCR Title 8 also includes standards for the identification, abatement, and handling of asbestos containing materials (8 CCR 1529 and 5208) and lead-based paint (8 CCR 1532.1).

California Highway Patrol and Department of Transportation

The California Highway Patrol and California Department of Transportation (Caltrans) are the enforcement agencies responsible for applicable federal (DOT) and State hazardous materials transportation regulations. Hazardous materials and waste transporters are responsible for complying with all applicable packaging, labeling, and shipping regulations. California Vehicle Code, Division 13, Chapter 5, Article 1 Sections 31303 - 31309 regulates the transport of hazardous materials. The provisions of this section apply to the highway transportation of hazardous materials and hazardous waste and include restrictions on labeling/placards, transportation routes, and other measures to ensure safe transport of regulated materials.

State Water Resources Control Board (SWRCB)

The SWRCB has primary responsibility to protect water quality and supply through the respective RWQCBs. As described in Section 4.9, Hydrology and Water Quality, RWQCBs are authorized by the Porter-Cologne Water Quality Control Act of 1969 to protect the waters of the state. The RWQCBs provide oversight for sites where the quality of groundwater or surface waters is threatened. Extraction and disposal of contaminated groundwater due to investigation/remediation activities or due to dewatering during construction require a permit from the RWQCBs if the water were discharged to storm drains, surface water, or land.

California Code of Regulations Title 23, Chapter 15, requires that non-hazardous liquid (greater than 42 gallons) or solid (greater than 10 cubic yards) waste must be reported to the RWQCB. Domestic wastewater and refuse releases are required to be reported under different non-Chapter 15 regulations.

California Fire Code

The 2019 California Fire Code is published by the California Building Standards Commission and incorporates by adoption the 2018 International Fire Code of the International Code Council. The California Fire Code is contained as Part 2 of the California Building Code and includes minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations. The California Building Code is updated triennially and the 2019 version was effective on January 1, 2020.

Medical Waste Management Act

Within the regulatory framework of the Medical Waste Management Act, the Medical Waste Management Program of the California Department of Health Services (CDHS) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste offsite treatment facilities and transfer stations throughout the state. The CDHS also oversees all medical waste transporters. UCSF works with San Francisco Department of Public Health to ensure the Medical Waste Management Program is enforced.

Radioactive Materials

Pursuant to the federal Atomic Energy Act, which requires states to assume responsibility for the use, transportation, and disposal of low-level radioactive material and for the protection of the public from radiation hazards, the Radiologic Health Branch (RHB) of the CDHS administers the state's Radiation Control Law, which governs the storage, use, transportation, and disposal of sources of ionizing radiation (radioactive material and radiation-producing equipment). Radioactive material regulations require registration of sources of ionizing radiation, licensing of radioactive material, and protection against radiation exposure. The RHB also regulates the transportation of radioactive materials and disposal of radioactive waste. Users of radioactive materials must maintain detailed records regarding the receipt, storage, transfer, and disposal of such materials. State regulations concerning radioactive substances are included in 17 CCR. The regulations specify appropriate use and disposal methods for radioactive substances, as well as worker safety precautions and worker health monitoring programs.

California Office of Statewide Health Planning and Development

The Office of Statewide Health Planning and Development (OSHPD) is a department of the California Health and Human Services Agency. OSHPD serves as the regulatory building agency for all hospitals and nursing homes in California. Its primary goal in this regard is to ensure that patients in these facilities are safe in the event of an earthquake or other disaster, and to ensure that the facilities remain functional after such an event in order to meet the needs of the community affected by the disaster.

Aboveground and Underground Storage Tanks

The SWRCB administers the Aboveground Storage Tank (AST) Program. Facilities that store petroleum in a single tank greater than 1,320 gallons or facilities that store petroleum in ASTs or containers with a cumulative storage capacity of greater than 1,320 gallons are subject to SWRCB regulations. The AST Program requires that the owners or operators file a storage statement, pay a facility fee, and prepare and implement a federal Spill Prevention Control and Countermeasure (SPCC) Plan. The SPCC Plan must discuss the procedures, methods, and equipment in place at the facility to prevent discharges of petroleum from reaching navigable waters.

State laws governing underground storage tanks (UST) specify requirements for permitting, construction, installation, leak detection monitoring, repairs, release monitoring, corrective actions, cleanup, and closure. The State laws are codified in the Health and Safety Code Division 20, Chapter 6.7 (supplemented by California Code of Regulations (CCR) Title 23, Chapters 16 and 17). The San Francisco Department of Public Health and the SFFD are the local agencies designated to permit and inspect USTs and ASTs and implement applicable regulations.

University of California

UCOP Sustainable Practices Policy

UCOP's Sustainable Practices Policy establishes goals in several areas of sustainable practices, including, but not limited to, sustainable procurement. Under procedures for Sustainable

Procurement, the Sustainable Practices Policy indicates the University will work to remove harmful chemicals from products brought onto campus by increasing the purchase of products and materials that disclose known hazards (e.g. in compliance with the requirements of LEED BD+C – or updated equivalent) and choosing products with reduced concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

UCSF 2014 LRDP

The UCSF 2014 LRDP included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Environmental Planning and Safety

EP1. Community health is of paramount importance to UCSF. UCSF bioscience facilities and research laboratories are designed by UCSF and inspected by outside regulatory agencies for compliance with applicable city, state, and federal regulatory requirements for environmental health and safety; use and collection of hazardous chemicals and of radioactive and bio-hazardous materials; use of animals; and waste collection.

EP2. Plan and locate UCSF's facilities to avoid hazards to the campus community and surrounding neighborhoods.

UCSF Office of Environmental Health and Safety

The UCSF Office of Environment, Health and Safety (EH&S) oversees UCSF's health and safety operations including the management of hazardous materials and wastes. EH&S programs include Environmental Protection, Biosafety, Chemical Safety & Industrial Hygiene, Controlled Substances, Ergonomics, Fire & Life Safety, Injury Illness and Prevention Program, Public Health, and Radiation Safety. EH&S provides key resources in the planning, development and implementation of environmental and health and safety training programs. EH&S also conducts routine surveys of campus laboratories and facilities to ensure compliance with regulatory requirements in the transport, use, storage and disposal of hazardous materials. Hazardous materials tracking and reporting is done through an online chemical inventory database system maintained by authenticated hazardous materials users. EH&S also reviews proposed plans for new campus facilities and remodels to address health, safety, and environmental risks associated with activities conducted in the buildings, in accordance with applicable environmental and health and safety laws, codes, and regulations. Operations are guided by EH&S policies and manuals such as the Standard Operating Procedures, Chemical Safety Policy, Safe Use and Storage of Chemicals, Spill Cleanup Procedure, Medical Waste Management Plan, Radiation Safety Manual, Laboratory Design Guide, Personal Protective Equipment Policy, Disposal of Chemicals.

4.8.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area or create a hazard to navigable airspace and/or operations at a public airport;

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topics for the reasons described below:

- ***Airport land use plan.*** There are no airports within 2 miles of the campus site boundary and as a result no impact would occur.
- ***Emergency response or evacuation plan.*** All expansion and improvements with the program would adhere to building code requirements and relevant emergency access and egress measures. All designs would be subject to review and approval by State Fire Marshall. In addition, UCSF design criteria and safety measures would ensure that emergency response abilities remain fully functional. Therefore, potential impacts related to emergency response or evacuation would remain less than significant.
- ***Wildland fire.*** UCSF's continued implementation of the Mount Sutro Open Space Reserve Vegetation Management Plan and reduction of fire hazards in the Reserve along with compliance with all California Fire Code requirements for all proposed improvements would ensure potential hazards from wildfires would be less than significant.

Approach to Analysis

The potential for the creation of significant impacts related to hazards and/or hazardous materials through construction and operation of campus development under the proposed CPHP was determined by a review of the existing conditions, with particular attention paid to the known or potential presence of hazardous materials and hazardous wastes as determined through a search of the environmental databases maintained by the DTSC and SWRCB; and information regarding the types and quantities of hazardous materials used in UCSF's clinical and research activities. Also considered are the existing regulatory requirements regarding the transportation, use, storage, and disposal of hazardous materials and wastes.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact HAZ-1: Construction and operation of campus development under the proposed CPHP could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Less than Significant with Mitigation)

CPHP

Construction

Construction activities that would occur in association with new development or redevelopment under the CPHP would include modification, demolition, and/or removal of a number of existing buildings on the campus site that may contain hazardous building materials. Further, hazardous materials would be used during construction of new buildings, renovation of structures, and other associated elements of the proposed CPHP. The potential for exposure of the public or the environment to hazardous materials during these demolition and construction activities is addressed below.

Exposure to Hazardous Building Materials

The proposed CPHP would include modification or demolition of existing campus structures that are of varying ages. Many structures within the campus site were built before newer regulatory requirements were enacted (1978 for lead-based paint and PCBs, 1981 for ACMs, and 2004 for mercury in fluorescent lighting) and, as a result, could contain hazardous building materials. Exposure to hazardous building materials during demolition, including ACMs, LBP, PCBs, mercury and other hazardous materials in structures would only occur during demolition activities, but could result in adverse health effects if not managed appropriately as required by existing laws and regulations. Once the structures have been removed, there would be no further exposure during operation of the new buildings under the proposed CPHP.

As described under the *Regulatory Setting*, above, existing federal, State, and local regulations require demolition or renovation activities that may disturb or require the removal of materials that consist of, contain, or are coated with ACM, LBP, PCBs, mercury, and other hazardous materials to be inspected and/or tested for the presence of hazardous materials. Further, all hazardous materials must be managed and disposed of in accordance with laws and regulations described in the *Regulatory Setting* and further described below.

The identification, removal, and disposal of ACM is regulated under 8 CCR 1529 and 5208. The identification, removal and disposal of LBP is regulated under 8 CCR 1532.1. For both ACM and LBP, all work must be conducted by a State-certified professional. If ACM and/or LBP is determined to exist onsite, a site-specific hazard control plan must be prepared and submitted to the appropriate agency detailing removal methods and specific instructions for providing protective clothing and equipment for abatement personnel (Bay Area Air Quality Management District for asbestos and Cal/OSHA for lead). If necessary, a State-certified LBP and an asbestos removal contractor would be retained to conduct the appropriate abatement measures as required by the plan. Wastes from abatement and demolition activities would be disposed of at a landfill(s) licensed to accept such waste. Once all abatement measures have been implemented, the contractor would conduct a clearance examination and provide written documentation to UCSF that testing and abatement have been completed in accordance with all federal and State laws and regulations.

In the case of PCBs, the identification, removal, and disposal is regulated by the US EPA under the Toxic Substances Control Act (TSCA) (Title 40 Chapter 1 Subchapter R Part 761) and California regulations (22 CCR 66263.44). Electrical transformers and older fluorescent light ballasts not previously tested and verified to not contain PCBs must be tested. If PCBs are detected above action levels, the materials must be disposed of at a licensed facility permitted to accept the materials. Upon completion of abatement measures, if applicable, the contractor would provide written documentation to EH&S that testing and abatement have been completed in accordance with all federal and State laws and regulations.

In the case of mercury in fluorescent light tubes and switches, the identification, removal, and disposal is regulated under 22 CCR 67426.1 – 67428.1 and 66261.50. Under these regulations, the light tubes must be removed without breakage and disposed of at a licensed facility permitted to accept the materials. Upon completion of abatement measures, if applicable, the contractor would provide written documentation to EH&S that testing and abatement have been completed in accordance with all federal, State, and local laws and regulations.

As discussed above, pursuant to federal and State regulations, the demolition permit process would require appropriate surveying, identification and disposal of any identified hazardous building materials. Therefore, exposure to ACM, LBP and/or other hazardous building materials that would create a potentially significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would not occur and the impact would be less than significant.

Naturally Occurring Asbestos

San Francisco is among the identified counties where ultramafic bedrock materials are present and have the potential for naturally occurring asbestos fibers, which could be encountered during excavation activities. If present, groundbreaking activities could disturb these fibers causing them to be airborne and potentially adversely affect workers and the public. However, implementation of **CPHP Mitigation Measure HAZ-1** would ensure that disturbance of underlying materials during earthwork activities associated with construction of new development under the CPHP would not expose workers or the public to naturally occurring asbestos, if present.

Use of Hazardous Materials during Construction

Construction activities would also likely require the use of limited quantities of hazardous materials such as fuels, oils, and lubricants for construction equipment; as well as paints, thinners, glues, solvents and cleaners. These hazardous materials are typically packaged in consumer quantities and used in accordance with manufacturer recommendations, and would be transported to and from the campus site. The improper handling and transport of hazardous materials could result in adverse health effects to workers or the public.

As discussed in the *Regulatory Setting*, transportation of hazardous materials is regulated by the DOT, CHP and Caltrans. Together, federal and State agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the exposure of hazardous materials.

See also CPHP Impact HAZ-2, below, for a discussion of construction best management practices (BMPs) that would be implemented as part of a Storm Water Pollution Prevention Plan, as required by the NPDES Construction General Permit which would also minimize the potential for an inadvertent release of hazardous materials during construction.

As discussed above, a comprehensive set of federal and State laws and regulations regulate the transportation, management, and disposal of hazardous materials and wastes so as to reduce the potential risks of human exposure. For these reasons, construction associated with the proposed CPHP would not result in a significant hazard due to exposure of the public or the environment to hazardous materials or wastes through the routine transport, use, or disposal of hazardous materials.

Operation

As discussed in the *Environmental Setting*, the use of hazardous materials presently occurs in a variety of campus operations; and their use would be expanded as part of operation of the new or expanded facilities under the proposed CPHP.

The Parnassus Heights campus site residential, classroom, office, and other campus uses (other than clinics, laboratories and research facilities) would typically include familiar hazardous materials such as toners, paints, and household cleaning products. In addition, activities such as building maintenance and landscaping commonly use fuels, oils, paints, lubricants, solvents, and pesticides. These common types of hazardous materials are typically stored and used in small quantities, and used in accordance with manufacturer recommendations. As such, the routine transport, use, storage or disposal of these materials under the CPHP would not be reasonably expected to cause an adverse impact to the public and the environment.

As discussed in the *Environmental Setting*, diesel fuel is currently stored on the campus site for use at the CUP for its generators and boilers in emergency situations. As authorized under the 2014 LRDP, the diesel fuel USTs will be replaced with new code-compliant tanks prior to the end of 2025. As such, under the CPHP, the continued storage and use of diesel fuel at the campus site would be carried out in compliance with all applicable State regulations to ensure any potential exposure risks would remain less than significant.

Clinics, laboratories and research facilities may include transport, handling, storage and disposal of other varied and larger quantities of hazardous materials, including low-level radioactive waste and medical/biological waste. Various chemicals that may be used may pose different levels of hazards in their use from acute to chronic illnesses if not managed appropriately. In general, the properties and health effects of chemical substances are unique to the individual materials, although they often can be grouped by chemical types. Operations would continue to comply with all hazardous materials regulatory requirements and UCSF protocols for the campus as detailed above in the Regulatory Setting section. UCSF’s Chemical Safety Policy establishes requirements and responsibilities for the safe use of hazardous chemicals in UCSF laboratories and other facilities. It is based on federal, State, and local regulations, as well as UCSF’s commitment to providing a safe environment for the entire UCSF community. The policy covers training requirements, hazard communication, standard operating procedures, safe storage, engineering controls, hazardous waste, security, shipping and transportation, lab close-outs, enforcement, and other aspects of safe and compliant chemical management. A related policy, known as the Workplace Safety and Environmental Protection Policy, addresses various responsibilities for ensuring a safe and compliant workplace, including reporting hazards, inspecting workplaces, and interfacing with regulatory agencies.

To minimize exposure to chemicals in the air, staff would continue to receive required training, take prescribed procedural precautions in accordance with existing regulatory and UCSF handling requirements, such as working under fume hoods and wearing appropriate personal protective equipment, when using chemicals likely to present inhalation exposure hazards. Fume hoods and other engineering controls would be required to meet Cal/OSHA requirements and fume hood ventilation rates are checked annually by EH&S. EH&S also oversees radiation safety in accordance with the Radiation Safety Manual that is consistent with Radiological Health Branch requirements. Campus departments are primarily responsible for ensuring that safe work practices are followed. EH&S supports departments with this responsibility by reviewing proposed laboratory designs for safety concerns and compliance with Cal/OSHA requirements to provide appropriate protection for the workers. Current chemical handling training programs used to educate staff would continue with development of new CPHP facilities.

Laboratories and research facilities developed and operated under the CPHP would also include transport, handling, storage and disposal of medical/biological waste. UCSF has established policies and procedures and implements a comprehensive system for management of hazardous materials at its facilities, including medical/biological wastes as overseen by EH&S. UCSF's EH&S is responsible for ensuring compliance with applicable laws and regulations governing the transport, use, storage and disposal of hazardous materials.

Compliance with hazardous storage and transportation regulations, and continuation of the programs and controls currently in place to manage hazardous materials, as mandated by state and federal laws, would minimize the hazards to workers, the public, and the environment. Therefore, implementation of the CPHP would result in a less than significant impact related to the use and disposal of hazardous materials and wastes.

> **CPHP Mitigation Measure HAZ-1:** An Excavation Management Plan shall be prepared by a qualified consultant to include the California Air Resource Board (CARB) Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations to minimize naturally occurring asbestos through the application of best management practices for fugitive dust from construction, grading and excavation operations. Unless site specific testing by a certified laboratory can demonstrate the absence of naturally occurring asbestos in materials to be excavated, construction specifications shall include implementation of this CARB ATCM.
>
> **Significance after Mitigation:** Implementation of an Excavation Management Plan would ensure that if naturally occurring asbestos is present in areas that would be disturbed, exposure risks would be reduced and this impact would be less than significant.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

Construction

The potential exposure to hazards from the routine transport, use, and disposal of hazardous materials during construction of the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would be similar to that described above for the CPHP. As with all construction under the CPHP, construction activities associated with these Initial Phase projects and Initial Phase improvements would also be required to adhere to the NPDES Construction General Permit and implement appropriate BMPs that would control hazardous materials transport, handling, and disposal. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to construction site runoff requirements in accordance with the City Public Works Code to minimize construction-related water quality impacts. As such, the potential for adverse effects would be reduced to less than significant levels.

Similarly, in regards to the potential for encountering naturally occurring asbestos during construction, the impact would be potentially significant. However, implementation of **CPHP Mitigation Measure HAZ-1** would ensure that disturbance of underlying materials would not expose workers or the public to naturally occurring asbestos, if present, for any proposed earthwork activities during construction of these Initial Phase projects and Initial Phase improvements at the campus site. Furthermore, as applicable, improvements that would be constructed outside the campus site boundary would be subject to the requirements of City Health Code Article 22B, San Francisco's Dust Control Ordinance, including implementation of Dust Control Plan. As such, potential effects related to naturally occurring asbestos during construction would be less than significant.

Operation

The quantities and types of hazardous materials and wastes involved in the operation of the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would vary considerably, from likely insubstantial amounts associated with the Irving Street Arrival and initial Aldea Housing Densification projects, to likely more extensive use of hazardous materials associated with RAB. Initial Phase improvements may also involve use of hazardous materials during operation and/or maintenance. Regardless, the same regulatory environment and/or UCSF policy requirements as described above for the CPHP would apply to these Initial Phase projects and Initial Phase improvements. Therefore, impacts associated with routine transport, use and disposal of hazardous materials during operation of the Initial Phase projects and Initial Phase improvements would be less than significant.

Mitigation: Implement CPHP Mitigation Measure HAZ-1.

Significance after Mitigation: Less than Significant.

Impact HAZ-2: Construction and operation of campus development under the proposed CPHP would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (Less than Significant)

CPHP

Construction

As noted above in Impact HAZ-1, construction activities would require the use of limited quantities of hazardous materials that are typical of the construction process for single- and multi-story structures, including fuels, oils, and lubricants for construction equipment; paints and thinners; and solvents and cleaners. These materials would be transported to and from the campus site for use during construction activities. The improper handling and transport of hazardous materials could result in accidental release of hazardous materials, thereby exposing the public or the environment to hazardous materials.

Construction activities that would disturb more than one acre would be required to comply with the NPDES Construction General Permit. This permit requires implementation of best management practices (BMPs) that would include measures to address the safe handling of hazardous materials, and in the unlikely event of an inadvertent release, also requires spill response measures to contain any release of hazardous materials. The use of construction BMPs implemented as part of a Storm Water Pollution Prevention Plan (discussed further in Section 4.9, *Hydrology and Water Quality*) as required by the NPDES Construction General Permit would minimize the potential adverse effects from accidental release of hazardous materials or wastes. These BMPs could include, but are not necessarily limited to, the following:

- Establishment of a dedicated area for fuel storage and refueling activities that includes secondary containment protection measures and spill control supplies;
- Requirements to follow manufacturer's recommendations on use, storage and disposal of chemical products used in construction;
- Avoidance of overtopping construction equipment fuel gas tanks;
- Proper containment and removal of grease and oils during routine maintenance of construction equipment; or
- Proper disposal of discarded containers of fuels and other chemicals.

In general, aside from refueling needs for heavy equipment, the hazardous materials typically used on a construction site would be brought onto the site by the construction contractor, packaged in consumer quantities, and used in accordance with manufacturer recommendations. The overall quantities of these materials on the site at any one time would not result in large bulk amounts that, if spilled, could cause significant soil or groundwater contamination. If a spill of hazardous materials on the construction sites were to occur, the spilled materials would be localized because of the relatively small quantities involved, and would be cleaned up in a timely manner in accordance with identified BMPs. See Impact HAZ-4 for a discussion of potential impacts related to encountering previously released (i.e., legacy contaminants) hazardous materials or wastes.

As described above, refueling activities of heavy equipment would be conducted in a dedicated and controlled area with secondary containment and protective barriers to minimize any potential hazards that might occur with an inadvertent release. Given the required protective measures (i.e., BMPs) and the quantities of hazardous materials typically needed for construction projects, such as those that would be constructed under the proposed CPHP, the threat of exposure to the public or contamination to soil and/or groundwater from construction-related hazardous materials is considered a less-than-significant impact.

Operation

Operation of the proposed new and expanded facilities associated with the CPHP would involve continued and likely expanded use of hazardous materials as described above in Impact HAZ-1. UCSF would continue to implement existing campus health and safety practices and comply with federal and State regulations related to the use, transport, and disposal of hazardous materials, thus minimizing the potential for a release and providing for prompt and effective cleanup in the unlikely event that an accidental release would occur. Furthermore, UCSF has prepared an Emergency Operations Plan for the campus, which addresses the campus community's planned response to various levels of human-made or natural emergency situations, including the release of hazardous materials. UCSF's HMBP for the campus also addresses spill response procedures that include, but are not limited to, specific emergency response instructions, locations of personnel and equipment resources, specialty hazard instructions, and appropriate training. The existing Emergency Operations Plan and HMBP would be revised to include the expanded operations that would occur under the proposed CPHP. Thus, the proposed CPHP would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Therefore, because a comprehensive set of enforced laws and regulations as well as existing UCSF policies and procedures govern the transportation and management of hazardous materials to reduce the potential hazards to the public and environment from upset and accident conditions, this impact would be less than significant.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Project, and Initial Phase Improvements

Construction

The potential for upset and accidental releases of hazardous materials during construction of the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would be similar to that described above for all construction that would occur under the CPHP. Construction activities with these Initial Phase projects and Initial Phase improvements would be required to adhere to the NPDES Construction General Permit and implement appropriate BMPs that would control hazardous materials transport, handling, and disposal such that the potential for upset and accident conditions would be less than significant.

Operation

Just as with the CPHP, the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would adhere to existing regulatory requirements and/or UCSF policies such that the potential for upset and accidental release conditions would be reduced to less than significant levels.

Mitigation: None required.

Impact HAZ-3: Construction and operation of the proposed CPHP would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Less than Significant)

As noted above in *Environmental Setting*, there are three public schools (Independence High School, Grattan Elementary, and Clarendon Alternative Elementary) located within a quarter mile of the campus site, and a number of child care centers (Stepping Stones Preschool, Haight Ashbury Community Nursery School, and ABC Bay Area Child Care). In addition, two child care centers are located within the Parnassus Heights campus site (Kirkham Child Development Center and the UCSF Marilyn Reed Lucia Child Development Center). Under the CPHP, the Lucia Child Care

Center and Kirkham Child Care Center would be demolished, and likely relocated to a new child care facility at the Proctor building location in the campus site.

CPHP

Construction

The potential for emissions of hazardous materials during construction to adversely affect any of the schools or day care centers would be relatively low for the same reasons described above in Impact HAZ-1. Construction activities would be required to adhere to the NPDES Construction General Permit and implement appropriate BMPs that would control hazardous materials transport, handling, and disposal such that the potential for emissions to adversely affect existing or proposed schools or daycare centers would be reduced to less than significant.

Operation

During the operational phases of facilities developed under the CPHP, the new and expanded facilities would continue to adhere to existing regulatory requirements and UCSF policies. And while these new and expanded facilities would likely increase the total quantities of hazardous materials and also potentially the types of hazardous materials, there would not likely be a substantive change in hazardous emissions since all transportation, use, storage, and disposal of hazardous materials would be conducted in accordance with applicable federal, State, and UCSF requirements which are designed to minimize exposure. Therefore, implementation of the CPHP would not result in any adverse exposure to hazardous emissions to existing or future schools within, or in the vicinity of, the campus site and the impacts would be considered less than significant. Please also refer to a health risk assessment associated with implementation of the CPHP presented in Section 4.2, Air Quality.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

Construction

The potential for emissions of hazardous materials during construction to adversely affect existing or proposed schools or daycare centers would be similar to that described above for the CPHP. Construction activities with these Initial Phase projects and Initial Phase improvements would be required to adhere to the NPDES Construction General Permit and implement appropriate BMPs that would control hazardous materials transport, handling, and disposal such that the potential for adverse effects associated with emissions would be less than significant.

Operation

Just as with the CPHP, the Initial Phase projects and Initial Phase improvements would adhere to existing regulatory requirements and/or UCSF policies such that the potential exposure of existing or proposed schools or daycare centers to hazardous material emissions would be reduced to less than significant levels.

Mitigation: None required.

Impact HAZ-4: Campus development under the proposed CPHP would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. However, previously unknown contamination could be encountered during construction and could have the potential to create a significant hazard to the public or the environment. (Less than Significant with Mitigation)

CPHP

As described above under *Environmental Setting*, the two cases identified in a review of DTSC and SWRCB environmental databases both predate the 2014 LRDP, were closed in accordance with the applicable regulatory agencies, required no further action, and there is no indication that any known threat to human health or the environment remains.

While there are no database records that would indicate a high probability of legacy contaminants present that could adversely affect construction workers or future occupants of the proposed improvements, the possibility exists for future improvements associated with the CPHP to encounter previously unidentified contamination. If not identified and managed appropriately, future visitors or workers at the campus site could be exposed to legacy contaminants. Construction activities in locations of undocumented contaminated materials could come in contact with contaminated soils, groundwater, or soil vapor that could adversely affect workers, the public or future occupants through soil vapor intrusion.

Preparation and implementation of a Soil Management Plan in accordance with Cal/OSHA standards as required by **CPHP Mitigation Measure HAZ-4** would ensure that workers would have the training to identify suspected contamination, and protocols for notification and isolation of suspected materials until laboratory confirmation can assess the potential exposure risks.

> **CPHP Mitigation Measure HAZ-4:** Prior to development on the Parnassus Heights campus site under the CPHP, a Soil Management Plan shall be prepared by a qualified environmental consulting firm to reflect current regulatory requirements and risk management protocols that are in accordance with Regional Water Quality Control Board oversight. The Plan shall include measures to address protocols for identifying, handling, and characterizing suspect contaminated soils. Notification and sampling requirements for adequate characterization shall be in accordance with the overseeing agency (RWQCB or SFDEH) requirements and any required removal or remediation work shall be completed to the overseeing agency’s standards prior to occupancy of the new structure.
>
> **Level of Significance after Mitigation:** With the implementation of CPHP Mitigation Measure HAZ-4, the CPHP would not create a significant hazard to the public or the environment as a result of exposure to previously unknown contamination or hazardous release sites. Thus, this impact would be considered less than significant.

Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

Just as with the CPHP, the Initial Phase projects and Initial Phase improvements at the campus site that include ground disturbing activities would have the potential to encounter previously unidentified contamination. Implementation of **CPHP Mitigation Measure HAZ-4** would also ensure that suspected contamination at the campus site is appropriately isolated and characterized to protect workers, the public and the environment. Furthermore, for any potential Initial Phase improvements that would be constructed outside the campus site boundary; would involve moving more than 50 cubic yards of soil; and would be located in an area subject to City Health Code Article 22A. Compliance with City Health Code Article 22A, as overseen by the City Department of Public Health, would ensure potential effects associated with release of hazardous materials in soil or groundwater would be less than significant.

Mitigation: Implement CPHP Mitigation Measure HAZ-4.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

This section presents an analysis of the cumulative effects of the CPHP when considered with other cumulative projects. The geographic scope of potential cumulative hazards and hazardous materials impacts encompasses the campus site and immediate surrounding area. Hazardous materials and hazard impacts are generally localized to specific sites/incidents and do not combine with one another in a way to create a greater or more severe hazard, because of the relative infrequencies, the variances in timing, and the existing response measures that tend to contain the vast majority of incidents and releases to very localized areas. Impacts relative to hazardous materials usually depend on the nature and extent of the hazardous materials release, and existing and future soil and groundwater conditions. For example, hazardous materials incidents tend to be limited to a smaller more localized area surrounding the immediate location and extent of a release, and could only be cumulative if two or more hazardous materials releases overlapped spatially and contemporaneously in a way that could be considered cumulatively considerable.

Impact C-HAZ-1: Construction and operation of campus development under the proposed CPHP, in conjunction with other cumulative development within the City of San Francisco, would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or from risk of upset and accident conditions. (Less than Significant)

Based on the existing management of hazardous materials and the continued oversight, guidance and compliance monitoring that would be conducted by UCSF's EH&S, there would not be a substantial change in how hazardous materials are handled on the proposed campus site. Other demolition and construction activities previously authorized under the 2014 LRDP that have not yet been implemented would similarly be carried out in accordance all applicable regulations governing hazardous materials. Land uses throughout the City of San Francisco include various light industrial and commercial land uses which are subject to similar regulations and internal standard operating procedures which control the use, storage, and disposal of hazardous materials such that routine exposure and release risks from upset and accident conditions are minimized. As a result of these existing regulatory requirements, the potential hazardous materials and hazard impacts would not combine to become cumulatively considerable.

Cumulative health and safety impacts could also occur if CPHP -related off-site hazards were to interact or combine with those of existing and/or proposed non-program development. This could only occur through the following mechanisms: air emissions; transport of hazardous materials and waste to or from the campus site; inadvertent release of hazardous materials to the sanitary sewer, storm drain, or non-hazardous waste landfill; and potential accidents that require hazardous materials emergency response capabilities. Air emissions are addressed in Section 4.2, *Air Quality*. The CPHP as well as other past, present, and future projects would be required to adhere to existing regulatory requirements for the appropriate handling, storage, and disposal of hazardous materials that are designed to minimize exposure and protect human health and the environment. These requirements include that all businesses that handle hazardous materials or wastes would be required to submit business information and hazardous materials inventory forms contained in a Hazardous Materials Management Plan and Hazardous Materials Business Plan. Cumulative increases in the transportation of hazardous materials and wastes would cause a less than significant impact because the probability of accidents is relatively low, and the use of legally required packaging minimizes the consequences of potential accidents. In addition, all cumulative projects in the area would be required to comply with the same laws and regulations as the CPHP. This includes federal and state regulatory requirements for transporting (Cal EPA and Caltrans) hazardous materials or cargo (including fuel and other materials used in all motor vehicles) on public roads or disposing of hazardous materials (Cal EPA, DTSC, SF Environmental Department of Health). The cumulative impact related to hazards and hazardous materials would be less than significant.

Mitigation: None required.

4.8.4 References

California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Draft Fire Hazard Severity Zones in LRA – San Francisco County*. October 5.

California Division of Mines and Geology (CDMG), 2000. *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*. August, 2000.

Department of Toxic Substances Control (DTSC), 2019. *Envirostor Database Search Results,* https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=505+Parnassus+Ave%2C+San+Francisco+CA. Accessed September 19, 2019.

Rutherford & Chekene, 2006. *Slope Stability Risk Assessment*. August 25, 2006.

San Francisco Department of Public Health (SFDPH), 2018. *Local Oversight Program, Letter Regarding Unauthorized Release at 250 Irving Street, San Francisco, California*. August 28, 2018.

State Water Resources Control Board (SWRCB), 2019. *Geotracker Database Search Results,* http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=505+Parnassus%2C+San+Francisco+CA. Accessed September 19, 2019.

United States Environmental Protection Agency (USEPA), 2019a. *Federal Bans on Asbestos*. Last updated April 26, 2019.

USEPA, 2019b. *Policy and Guidance for Polychlorinated Biphenyl (PCBs)*. Available: https://www.epa.gov/pcbs/policy-and-guidance-polychlorinated-biphenyl-pcbs. Last Updated April 25, 2017. Accessed September 19, 2019.

United States Geological Survey (USGS), 2011. *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*, Open File Report 2011-1188, 2011.

4.9 Hydrology and Water Quality

This section describes and evaluates potential for construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts related to hydrology and water quality. The section contains a description of the existing hydrology and water quality conditions of the campus site and the surrounding areas; describes the regulatory University, federal, State and local regulations related to hydrology and water quality; identifies criteria used to determine impact significance, and provides an analysis of the changes in hydrology and water quality associated with the implementation of the CPHP, as well as the identification of potentially feasible measures that could mitigate significant impacts.

4.9.1 Environmental Setting

Climate

The Bay Area has a Mediterranean climate, with cool, dry summers and mild, wet winters. The mean annual precipitation in San Francisco is approximately 24 inches per year with most of the rainfall occurring between November and March. The average annual temperature in San Francisco is 57.3 degrees Fahrenheit, with the minimum average monthly temperature occurring in December and January (46 degrees Fahrenheit) and maximum average monthly temperature occurring during September (70 degrees Fahrenheit) (U.S. Climate Data, 2019).

Watershed Drainage Basins

The majority of the City of San Francisco is urbanized and covered in impermeable surfaces with few daylighted surface waters, though topographic drainages in some park and open space areas may have ephemeral surface flows during storms. **Figure 4.9-1** presents existing watershed drainage basins in San Francisco. As shown in Figure 4.9-1, Parnassus Heights campus site straddles two City watershed basins. The west side of the Parnassus Heights campus site is located in the City's Sunset drainage basin within the larger Western Basin; and east side of the campus site is in the City's Channel drainage basin within the larger Eastern Basin.

City of San Francisco Stormwater Collection and Treatment

The City's combined sewer system (CSS) is a network of pipes and tunnels that convey combined stormwater and sanitary sewage flows, referred to as combined sewer discharge, to City wastewater treatment plants. During non-storm conditions, the City's CSS collects and treats up to 80 million gallons per day (mgd) of wastewater, primarily municipal sewage.

The CSS routes flows to two treatment plants: the Southeast Treatment Plant (SEP) in the Bayview/Hunters Point neighborhood, and the Oceanside Treatment Plant (OSP) east of the Great Highway near the San Francisco Zoo. The SEP receives approximately 80 percent of the combined wastewater and stormwater flows from the city and discharges them to San Francisco Bay. On average, the SEP treats approximately 60 mgd of combined flows each day. During a

SFO/D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: City of San Francisco, 2011

Figure 4.9-1
San Francisco Drainage Basins

rainstorm, the SEP has the capacity to treat up to 250 mgd of combined flows. The OSP treats the remaining 20 percent of flows from the west side of the city, including approximately half the combined flows from the Parnassus Heights campus site. On an average day, the OSP can treat approximately 17 mgd; during rain events, the wet-weather treatment capacity is 65 mgd (SFPUC, 2019a).

These plants normally employ a minimum of secondary treatment to the combined flows, before discharging the effluent. However, depending on individual storm characteristics and timing, the treatment plants can be overwhelmed, which results in discharge of minimally treated flows to the Bay and/or Ocean.

Campus Site Drainage and Stormwater Collection

The majority of rainfall runoff within the developed areas of the campus site, including the campus core in the north portion of the campus site, and the Aldea Housing complex in the southeast area of the campus site, is captured and routed to UCSF's owned- and maintained stormwater infrastructure within the campus site, and then discharged to the City's CSS collection lines in Parnassus Avenue, Kirkham Street, Irving Street, and Clarendon Avenue. See description of City's CSS system. Rainfall that occurs within the campus site (including portions of the Reserve) that is not captured and directed to the CSS either infiltrates into the ground (in landscaped and other pervious areas), or flows overland off-site.

Groundwater

There are seven groundwater basins in San Francisco. The Parnassus Heights campus site is located within the Westside Groundwater Basin which extends beneath the Sunset District from Golden Gate Park to the San Francisco/San Mateo County line, and from the Pacific Ocean to inland bedrock exposures generally associated with Mount Sutro and Mount Davidson. The principal aquifers for water supply in the basin are the Merced and Colma Formations. Several thousand feet in total thickness, the Merced Formation has been developed for water supply in its upper and middle units which are on the order of 500 and 600 feet thick, respectively. The shallower Colma Formation is near the surface, and is not clearly distinguishable from the upper Merced Formation (SFPUC, 2005).

In April, 2017, the San Francisco Public Utilities Commission (SFPUC) began pumping groundwater from the Westside Groundwater Basin aquifer from approximately 270 feet to 460 feet below the surface. The groundwater is treated and blended with regional drinking water supplies before delivery to consumers for potable use. To date, four groundwater wells have been completed, with the remaining two still under construction. The SFPUC plans to continue to add groundwater in order to reach its goal of blending 4 million mgd of treated groundwater with regional water supplies (SFPUC, 2019b).

The Westside Groundwater Basin is routinely monitored for water quality parameters as part of the Groundwater Monitoring Program that provides information summarizing basin-wide groundwater pumping, groundwater levels and quality in the different aquifer systems within the basin, and surface water conditions, most notably in Lake Merced.

Flooding

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) that delineates areas subject to flood hazards on Flood Insurance Rate Maps (FIRMs) for each community participating in the NFIP. The FIRMs show the areas subject to inundation by a flood that has a one percent chance or greater of being equaled or exceeded in any given year. This type of flood is commonly referred to as the 100-year or base flood. Areas on FIRMs are divided into geographic areas, or zones, that FEMA has defined according to varying levels of flood risk. The entire campus site is located in an area that is above the one percent annual chance (100-year) and the 0.2 percent chance (500-year) flood level (FEMA, 2015).

The City, in coordination with the SFPUC, has also developed a 100-Year Storm Flood Risk Map that shows areas of San Francisco where significant flooding from storm runoff is highly likely to occur during a 100-year storm.[1] This flood map also shows the Parnassus Heights campus site is outside of the 100-year flood zone (SF, 2019).

4.9.2 Regulatory Setting

Federal

Clean Water Act

Water quality objectives for all waters of the United States are established under applicable provisions of section 303 of the federal Clean Water Act (CWA). The CWA prohibits the discharge of pollutants to navigable waters from a point source unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Point sources are defined as any discernible, confined, and discrete conveyance including but not limited to any pipe, ditch, channel, tunnel, well, or vessel from which pollutants are discharged. Nonpoint sources come from many diffuse sources including land runoff, precipitation, drainage, seepage, or hydrologic modification. Because implementation of these regulations has been delegated to the State, additional information regarding this permit is discussed under the “State” subheading, below.

National Pollutant Discharge Elimination System Permits

The NPDES permit system was established in the CWA to regulate municipal and industrial point discharges to surface waters of the US. Each NPDES permit for point discharges contains limits on allowable concentrations of pollutants contained in discharges. CWA sections 401 and 402 contain general requirements regarding NPDES permits. CWA section 307 describes the factors that the EPA must consider in setting effluent limits for priority pollutants.

The regulations initially focused on municipal and industrial wastewater discharges in 1972, followed by stormwater discharge regulations, which became effective in November 1990. NPDES permits for wastewater and industrial discharges specify discharge prohibitions and effluent limitations and also include other provisions (such as monitoring and reporting programs) deemed

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[1] In contrast to the preliminary FEMA flood hazards map for San Francisco which show inland flood hazards associated with San Francisco Bay and the Pacific Ocean, SFPUC’s Flood Risk Map focuses on flooding that would be attributed to peak storm flows during a 100-year storm event.

necessary to protect water quality. In California, the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) implement and enforce the NPDES program. Stormwater sources are diffuse and originate over a wide area rather than from a definable point. The goal of NPDES stormwater regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of structural and non-structural BMPs. BMPs can include the development and implementation of various practices, including educational measures (e.g., workshops informing public of what impacts results when household chemicals are dumped into storm drains), regulatory measures (e.g., local authority of drainage facility design), public policy measures, and structural measures (e.g., filter strips, grass swales and detention ponds). For the campus site, all stormwater runoff that is not infiltrated onsite is collected in the existing City infrastructure which directs all runoff to one of two combined flow treatment plants described above. These plants discharge effluent to either the San Francisco Bay or Pacific Ocean in accordance with an individual NPDES permit.

Executive Order 11988 and National Flood Insurance Program

Under Executive Order 11988, FEMA is responsible for management of floodplain areas, which are defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a one percent or greater chance of flooding in any given year. Also, FEMA administers the National Flood Insurance Program, which requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the one percent annual chance flood zone. FEMA prepares FIRMs that are used to identify areas prone to flooding.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides for protection of the quality of all waters of the State of California for use and enjoyment by the people of California. The act also establishes provisions for a statewide program for the control of water quality, recognizing that waters of the State are increasingly influenced by inter-basin water development projects and other statewide considerations, and that factors such as precipitation, topography, population, recreation, agriculture, industry, and economic development vary regionally within the State. The statewide program for water quality control is therefore administered most effectively on a local level with statewide oversight. Within this framework, the act authorizes the SWRCB and RWQCBs to oversee the coordination and control of water quality within California.

General Construction Activity Stormwater Permit

In accordance with NPDES regulations, to minimize the potential effects of construction runoff on receiving water quality, the State requires that any construction activity affecting one acre or more obtain coverage under a General Construction Activity Stormwater Permit (Construction General Permit). The current Construction General Permit is the modified 2017 NPDES Construction General Permit (CGP) for Storm Water Discharges from Construction Activities, effective June 27, 2019. CGP applicants are required to prepare and implement a SWPPP which includes implementing BMPs to reduce construction effects on receiving water quality by implementing erosion and sediment control measures and reducing or eliminating non-stormwater discharges. Examples of typical construction BMPs in SWPPPs include, but are not limited to: using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment so as to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the City drainage system or receiving waters.

The CGP includes what are known as Construction and Development rule requirements which have non-numeric effluent limitations that apply to all permitted discharges from construction sites (40 CFR 450.21). The effluent limitations are structured to require construction operators to first prevent the discharge of sediment and other pollutants through the use of effective planning and erosion control measures; and second, to control discharges that do occur through the use of effective sediment control measures. Operators must implement a range of pollution control and prevention measures to limit or prevent discharges of pollutants, including those from dry weather discharges as well as wet weather (i.e., stormwater).

Phase II General Stormwater Permit (SWRCB Order Nos. 2003-0005-DWQ and 2013-0001-DWQ)

In 2003, the SWRCB adopted the General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer System (MS4s), SWRCB Order No. 2003-0005-DWQ (Phase II General Stormwater Permit), which applies to small municipal separate storm water systems, including systems owned and operated by the University of California. A revised permit applying to the MS4 at UCSF was approved in 2013 (Order No. 2013-0001-DWQ). The revised Phase II General Permit required UCSF to develop, implement and enforce a Storm Water Management Program designed to minimize the discharge of pollutants into receiving waters; identify appropriate stormwater treatment practices with measurable performance criteria; and ensure that the program includes provisions to address six minimum measures to promote pollutant load reduction. These measures are: public education, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control and pollution prevention and good housekeeping.

The revised Phase II permit also required that plans for UCSF projects that create and/or replace (including projects with no net increase in impervious footprint) more than 5,000 square feet of impervious surface include the following:

- Site design measures such as porous pavement, setbacks, and impervious area disconnections to reduce project site runoff
- Low-Impact Design (LID) standards to effectively reduce runoff and pollutants from the project site, including:
- Source control measures such as permanent and/or operational source control measures at loading docks, fuel dispensing areas, pools, and other areas;

- Numeric sizing criteria for stormwater retention and treatment; and
- Stormwater treatment measures and baseline hydromodification management measures

Regional

San Francisco Regional Water Quality Control Plan (Basin Plan)

San Francisco Bay waters are under the jurisdiction of the San Francisco Bay RWQCB which established regulatory standards and objectives for water quality in the Bay in the *Water Quality Control Plan for the San Francisco Bay Basin*, commonly referred to as the Basin Plan. The Basin Plan is reviewed on a triennial basis and the current plan includes amendments that have been adopted up through May 4, 2017. The Basin Plan identifies existing and potential beneficial uses for surface waters and provides numerical and narrative water quality objectives designed to protect those uses. The preparation and adoption of water quality control plans is required by the California Water Code (Section 13240) and supported by the federal CWA. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plan is a regulatory reference for meeting the State and federal requirements for water quality control. Adoption or revision of surface water standards is subject to the approval of the U.S. Environmental Protection Agency (USEPA).

NPDES Separate Storm Sewer System Permit

The City and County of San Francisco operates the OSP and SEP and their related transport and outfall facilities under the regulatory provisions in NPDES Permits No. CA0037681 and CA0037664, and the Waste Discharge Requirements (WDRs) cited in Orders No. R2-2019-0028 (adopted September 11, 2019, expiring October 31, 2024) and R2-2013-0029 (adopted on August 14, 2013, expired September 30, 2018 but currently in revision), respectively. These Orders stipulate protocols for the monitoring of dry and wet weather influent and effluent and limitations on sampled constituents of concern. The SEP also maintains a pretreatment program for Combined Sewer System flows.

University of California

UCOP Sustainable Practices Policy

UCOP's Sustainable Practices Policy establishes goals in several areas of sustainable practices, including, but not limited to, green building, climate protection, sustainable operations, and sustainable water systems. Under procedures for Sustainable Water Systems, the Sustainable Practices Policy indicates that each campus will develop and maintain a Water Action Plan that identifies long term strategies for achieving sustainable water systems. Each Water Action Plan includes a section on Stormwater Management developed in conjunction with the location stormwater regulatory specialist that:

a. Addresses stormwater management from a watershed perspective in a location-wide, comprehensive way that recognizes stormwater as a resource and aims to protect and restore the integrity of the local watershed(s);

b. References the location's best management practices for preventing stormwater pollution from activities that have the potential to pollute the watershed (e.g., construction; trenching; storage of outdoor equipment, materials, and waste; landscaping maintenance; outdoor cleaning practices; vehicle parking);

c. Encourages stormwater quality elements such as appropriate source control, site design (low impact development), and stormwater treatment measures to be considered during the planning stages of projects in order to most efficiently incorporate measures to protect stormwater quality;

d. If feasible, cites relevant and current location stormwater-related plans and permits;

e. Includes, to the extent feasible, full cost evaluation of stormwater management initiatives.

UCSF 2014 LRDP

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP campus-wide objective relates to the Sustainable Practices Policy:

Campus-Wide Objectives

4. **Promote Environmental Sustainability**
    F. Facilitate growth in an environmentally responsible manner while reducing UCSF greenhouse gas emissions in compliance with UC *Sustainable Practices Policy.*

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Sustainability

S1. Meet or exceed guidelines and standards in the University of California's Sustainable Practices Policy when planning and developing projects. Policy goals are categorized as follows: Green Building; Clean Energy; Climate Protection Practices (including greenhouse gas reduction); Sustainable Transportation; Sustainable Building Operations; Recycling and Waste Management; Environmentally Preferable Purchasing Practices; Sustainable Foodservices Practices.

4.9.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    i. Result in substantial erosion or siltation on or off site;
    ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;
    iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    iv. Impede or redirect flow.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topics for the reasons described below:

- ***Decrease groundwater supplies or interfere with groundwater recharge.*** Development under the proposed CPHP could increase impervious surfaces but not enough to interfere with groundwater recharge and the CPHP would not require use of groundwater for construction or operation. Therefore, the proposed CPHP would not substantially deplete groundwater supplies or interfere substantially with recharge.
- ***Risk of release of pollutants due to inundation.*** Based on the location of the campus outside of a 100-year flood zone, and its elevation and distance to the nearest major body of water, there would be no impact related to risk of release of pollutants due inundation from a flood, tsunami or seiche.

It should be noted that the Initial Study inadvertently checked two significance boxes for the Hydrology and Water Quality topic e) “Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.” Development of the proposed CPHP would alter drainage patterns and the potential to affect water quality is analyzed below in Impact HYD-1, but development would not otherwise conflict with or obstruct the RWQCB Basin Plan for the San Francisco Bay. The campus site is located within the Westside groundwater basin which is not a medium- or high-priority groundwater basin and which does not require preparation or implementation of a Groundwater Sustainability Plan. Given these factors, and the additional analyses for other topics in this EIR section, the proposed CPHP would not conflict with or obstruct implementation of a water quality control plan or a sustainable groundwater management plan, and no impact would occur.

Approach to Analysis

Impacts on water quality were evaluated qualitatively by considering the type of pollutants the CPHP would generate during construction and operational phases and whether meeting the requirements of applicable regulations would reduce potential impacts to a less-than-significant level. On-site drainage impacts were also evaluated qualitatively for full buildout of the CPHP. Development under the CPHP would comply with applicable State and federal laws, regulations, design standards, and plans.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact HYD-1: Construction and operation of campus development under the CPHP would not have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality. (Less than Significant)

CPHP

Construction

Over the course of construction of development identified under the CPHP, the use of construction equipment and other vehicles could result in spills of oil, grease, gasoline, brake fluid, antifreeze, or other vehicle-related fluids and pollutants. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery could result in accidental spills or discharges that could degrade water quality. In addition, the use of equipment and ground disturbing activities could increase erosion, in turn potentially increasing sediment discharged into storm water that could degrade water quality. As discussed in the *Regulatory Setting*, above, development associated with the CPHP would be required to comply with existing regulations designed to reduce or eliminate construction-related water quality effects, including the NPDES CGP and the UCSF Storm Water Program for construction projects on UCSF-owned property.

Before any construction activities commence for any individual project, an application for coverage under the NPDES CGP would be submitted to the San Francisco RWQCB. Before construction could begin, a Stormwater Pollution Prevention Plan (SWPPP) would be developed and a Notice of Intent (NOI) filed with the RWQCB. After the RWQCB confirms the applicability of the CGP, and approves the SWPPP, construction could commence. In accordance with the CGP Permit, UCSF would be required to prepare and implement a SWPPP for proposed development activities to minimize water quality impacts during construction and demolition. The SWPPP will identify pollutant sources within the construction area and recommend site-specific BMPs regarding control of sediments in runoff and storage and use of hazardous materials to prevent discharge of pollutants into stormwater. Likely BMPs include, but are not limited to:

- Erosion control practices
- Sediment control practices
- Practices to reduce the tracking of sediment onto public and private roads
- Practices to prevent or minimize wind erosion
- Practices to minimize contact with stormwater
- Construction material loading and unloading
- Waste management and disposal
- Stormwater run-on and run-off controls
- Non-stormwater discharges and management
- Maintenance, inspection, and repair of structural controls
- Spill prevention and control
- Post-construction stormwater management
- Development of a Rain Event Action Plan (REAP)
- Construction site monitoring and reporting
- Water quality sampling and analysis

In addition, proposed development activities will need to obtain a water quality certification from the RWQCB for construction activities, which would also require implementation of BMPs and specific measures for the protection of water quality during construction. Projects that create and/or replace more than 2,500 square feet of impervious surfaces would be required to submit an Erosion Control Plan seven days prior to the start of work and submit it to UCSF Project Management and Environmental Health and Safety (EH&S).

Compliance with the NPDES CGP permit regulations and the UCSF Storm Water Program as outlined above would prevent the substantial degradation of water quality during construction of any development associated with the CPHP. These regulatory requirements are designed to ensure that construction projects result in water quality discharges that are not in violation of SWRCB objectives, and as such would be effective in ensuring that construction activities result in less than significant impacts related to water quality.

Operation

The campus core, where the majority of development and redevelopment under the CPHP is proposed, is largely developed and covered in impervious surfaces (estimated at approximately 86 percent impervious). Preliminary estimates indicate additional building development under the CPHP could incrementally increase the amount of impervious surfaces across the campus core by an additional 4 percent (about one acre) over existing conditions. Elsewhere on the campus site, the CPHP is not expected to notably increase impervious surfaces, as the proposed new housing buildings in the Aldea Housing complex would be sited largely within existing housing building footprints.

As under existing conditions, stormwater runoff from the new development under the CPHP would potentially contain pollutants common in urban runoff, including metals, oils and grease, pesticides, herbicides, nutrients, pet waste, and garbage/litter with no substantive change in the type of pollutants associated with the proposed development. Stormwater runoff would be collected by existing and new on-site stormwater collection infrastructure, depending on location, that would direct the runoff to the existing off-site City CSS infrastructure in adjacent streets, and depending on point of discharge, treated at the City's OSP or SEP.

Development associated with the CPHP would not substantively change how runoff is directed or routed through the campus site to the City's CSS and the respective combined flow treatment plant. Furthermore, consistent with post-development BMP requirements, including LID measures, contained within the NPDES Phase II MS4 permit which are incorporated into UCSF's Storm Water Program, development associated with the CPHP would include operational stormwater features that minimize discharge of pollutants and eliminate prohibited non-stormwater discharges as part of the final drainage design. Implementation of LID site design measures such as green roofs, permeable paving, or other infiltration-based stormwater features (e.g., flow-through planters) would be required in project designs and would effectively reduce the amount of increase in impervious surfaces. Incorporation of these design features would be effective in minimizing the offsite discharge of stormwater pollutants.

Therefore, due to the characteristics of the proposed changes and inclusion of post-development BMPs and NPDES drainage control requirements, the operational impacts related to water quality and waste discharge requirements would be less than significant.

Mitigation: None required.

Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification Projects, and Initial Phase Improvements

Development associated with the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would be subject to the same or similar regulatory requirements as those described above during construction and operation. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to construction site runoff requirements and post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance. As such, the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality would be less than significant.

Mitigation: None required.

Impact HYD-2: Construction and operation of the campus development under the CPHP would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off- site; substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow. (Less than Significant)

CPHP

Erosion or Siltation

Construction

Ground disturbing activities associated with construction of new development under the CPHP, including excavation and grading (as described in Chapter 3, *Project Description*), would temporarily expose underlying soils and has the potential to result in erosion or siltation on- or off-site. There are no natural water or drainage features on the campus site in the vicinity of where additional development would occur under the CPHP, and current flow of stormwater runoff within the campus core and Aldea Housing complex is largely directed to existing on-site storm drain facilities and discharged to the City's CSS for treatment at the City's OSP and SEP.

As described above under Impact HYD-1, construction activities associated with the CPHP would be required to comply with the NPDES CGP and UCSF's Storm Water Program. The contractor would be required to prepare and implement a SWPPP that includes erosion and sediment control BMPs to minimize the potential for erosion and sedimentation. BMPs would include, but would not necessarily be limited to, filtering runoff during construction, avoiding heavy grading and earthwork operations during the rainy season, and incorporating landscaping as early as possible. Therefore, with implementation of erosion and sedimentation control BMPs as required by the NPDES CGP, the potential changes to drainage patterns during construction would have a less than significant impact.

Operation

As indicated under Impact HYD-1, additional building development under the CPHP could incrementally increase the amount of impervious surfaces over existing conditions, primarily in the campus core, which could result in localized alteration of existing drainage patterns within the campus site, and create additional sources of erosion or siltation. UCSF, as a non-traditional municipal discharger, is required to adhere to the NPDES Phase II MS4 permit which include LID stormwater requirements. The LID stormwater features that could be used to meet these requirements could include green roofs, permeable paving and flow-through planters which can effectively limit the amount and rate of stormwater runoff such that it also reduces the potential for erosion or sedimentation. Incorporating these design measures into the final project designs would not only reduce peak storm flows but would also ensure that the potential for erosion or sedimentation is minimized. Therefore, with adherence to the design measures and LID stormwater requirements of the NPDES Phase II MS4 permit, the potential impacts related to erosion and sedimentation would be less than significant.

Flooding and Stormwater Drainage Capacity

As indicated above, the additional development under the CPHP could incrementally increase the amount of impervious surfaces over existing conditions, primarily in the campus core, and could result in localized alteration of existing drainage patterns within the campus site However, the implementation of the LID requirements would minimize any increase in the rate or amount of peak storm runoff making flooding on- or off-site unlikely. As discussed in the Environmental Setting, the campus site is not considered susceptible to flooding from 100-year storm events. As under existing conditions, under buildout of the CPHP, stormwater runoff within developed areas of the campus site would continue to be collected by on-site stormwater collection facilities and routed off-site to the City's CSS. Due to the relatively small change in impervious surfaces and the flow reductions that would be achieved with the implementation of LID stormwater features, storm water flows from the campus site would not adversely affect stormwater drainage capacity. In fact, the CPHP includes upgrades to the existing CSS within the campus core as discussed further in Section 4.16, Utilities. Therefore, considering the minor change in impervious surfaces, incorporation of LID stormwater features, and proposed improvements to the existing CSS that would occur with the program, the potential impacts related to flooding on- or off-site, stormwater drainage capacity, or additional sources of polluted runoff would be less than significant.

Impede or Redirect Flow

As noted above, the campus site is not located in a 100-year flood hazard area nor is it identified by SFPUC as an area subject to flooding from 100-year peak storm events. The campus core and Aldea Housing area are already developed with stormwater collection facilities, and proposed new development in these areas under the CPHP would not impede or redirect flood flows. The potential impact would be less than significant.

Mitigation: None required.

Irving Street Arrival, RAB, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

Construction

As with all development proposed under the CPHP, the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements at the campus site would require adherence to the NPDES CGP and UCSF's Storm Water Program, as applicable. On its own, the Irving Street Arrival project would not disturb more than one acre, and would not involve disturbance of any substantive quantities of subsurface soils, making the potential for erosion or siltation negligible. The RAB and initial Aldea Housing Densification projects would individually disturb more than one acre. As part of the CPHP, the contractor would be required to adhere to the CGP for any subsurface soils that are disturbed. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to construction erosion and sediment control requirements in accordance with the City Public Works Code. Implementation of these requirements, therefore, would reduce the potential for erosion or siltation to less than significant levels.

Operation

Development associated with the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements at the campus site would be subject to the same regulatory requirements during operation as described for all development under the CPHP. The Irving Street Arrival project, as essentially a building modification, would have negligible changes in stormwater runoff and thus the potential for erosion or siltation would be less than significant. For the RAB and initial Aldea Housing Densification projects, implementation of required LID measures such as permeable paving, green roofs, flow-through planters, or others, in accordance with UCSF's Storm Water Program and the NPDES Phase II MS4 would be effective in minimizing the potential for erosion or siltation. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance. Therefore, the potential impact for all three projects would be less than significant.

Flooding and Stormwater Drainage Capacity

The proposed Irving Street Arrival project would have no associated increase in stormwater runoff because of no net change to impervious surfaces. As a result, there would be no impact related to flooding or stormwater drainage capacity. As indicated above, the RAB and initial Aldea Housing Densification projects, and as needed, Initial Phase improvements, would be required to implement stormwater drainage control features consistent with the NPDES Phase II MS4 permit, which would ensure that changes to drainage patterns, if any, do not increase stormwater flow volumes such that there would be no increased potential for flooding or adverse effects related to stormwater drainage capacity. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to stormwater management and design guidelines in accordance with the City Public Works Code. The potential impact would be less than significant.

Impede or Redirect Flow

The campus site and surrounding areas are not located in a 100-year flood hazard area or identified by SFPUC as an area subject to flooding from 100-year peak storm events. The campus core and Aldea Housing complex are already developed and would not impede or redirect flood flows. The potential impact on flood flows from implementation of the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvement would be less than significant.

Mitigation: None required.

Cumulative Impacts

The geographic scope of analysis for cumulative impacts related to hydrology and water quality is the areas of the City of San Francisco that are served by the City's CSS. Potential cumulative impacts would be associated with the off-site discharge of pollutants, including sediment, during construction and operational activities, which could further degrade water quality of the receiving waters within the hydrologic unit.

Impact C-HYD-1: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development within the City of San Francisco, would not cumulatively violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. (Less than Significant)

Cumulative projects have the potential to discharge pollutants, including sediment, off-site during construction and operational activities, which could further degrade runoff directed into the CSS. However, similar to the CPHP, cumulative projects would be required to implement project-specific BMPs and comply with federal, State, as well as local regulations related to stormwater water quality. These regulations include, but are not limited to, the NPDES CGP and also the City's Stormwater Management Ordinance. All cumulative projects that disturb more than one acre would include preparation and implementation of a SWPPP to reduce pollutants in stormwater and other non-point source runoff during construction. Projects that create or replace 5,000 square feet or more of impervious surfaces and have existing impervious surfaces greater than 50 percent must decrease the stormwater runoff rate and volume by 25 percent from 2-year 24-hour design storm. These regulatory requirements also include LID design measures which must be implemented into project designs and are created to minimize off-site discharges and reduce pollutant loading. Therefore, with adherence to these existing regulatory requirements the potential cumulative impact related to water quality standards or waste discharge requirements would be less than significant.

Mitigation: None required.

Impact C-HYD-2: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development in the City of San Francisco's CSS, would not have the potential to cumulatively alter the drainage pattern of the site or area, through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow. (Less than Significant)

Erosion or Siltation

Cumulative projects would likely have ground disturbing activities that would alter drainage patterns, which, in turn, could result in erosion or siltation in runoff collected by the City's CSS. However, similar to the CPHP, construction and operation of cumulative projects would be required to implement project-specific BMPs and comply with federal, state, and local regulations related to water quality of stormwater runoff. These regulations include, but are not necessarily limited to, the NPDES CGP and the City's Stormwater Management Ordinance which require that BMPs during construction and operation minimize the potential for erosion or siltation.

Therefore, with adherence to these existing regulatory requirements, the potential cumulative impact related to erosion or siltation would be less than significant.

Flooding and Stormwater Drainage Capacity

As stated above, cumulative projects would involve redevelopment and development within what is already a densely developed area with a relatively high percentage of impervious surfaces. However, these cumulative projects could result in increases in impervious surfaces providing additional stormwater runoff that could create or exacerbate flooding and/or exceed the capacity of existing stormwater infrastructure.

As previously discussed, cumulative projects would be required to comply with applicable stormwater runoff regulations, including the City's Stormwater Management Ordinance. The ordinance includes drainage control requirements that address management of peak stormwater flows and even reducing stormwater flows from existing conditions, in many cases, such that there could be potential reductions in stormwater volumes compared to existing conditions. In addition, like the CPHP, other redevelopment projects could include updates to outdated or undersized stormwater infrastructure that no longer meets current demands or City requirements. Older infrastructure would be replaced with newer infrastructure that could provide increased capacity to accommodate higher volume flows during peak storm events.

Therefore, since the CPHP would include upgrades to existing infrastructure, address any increases in impervious surfaces with implementation of LID stormwater features similar to what would be required for other current and future cumulative projects, the potential for flooding or exceedances of stormwater infrastructure capacity would be less than significant.

Impede or Redirect Flow

As noted above, the campus site is located in an upland portion of the City that is not within a 100-year flood hazard area, and is not identified by SFPUC as an area subject to flooding from 100-year peak storm events. As a result, there is no means for the proposed improvements associated with the CPHP to combine with other cumulative projects and create adverse effects related to impeding or redirecting flood flows. Accordingly, the project would have an inconsiderable contribution to cumulative effects on impedance or redirection of flood flows. There would be no cumulative impact.

Mitigation: None required.

4.9.4 References

Federal Emergency Management Agency (FEMA), 2015. *San Francisco Interim Floodplain Map, NW San Francisco*. November 12, 2015.

San Francisco Water Power and Water (SF), 2019. 100-Year Storm Flood Risk Map. Available at: https://sfplanninggis.org/floodmap/. Accessed September 26, 2019.

San Francisco Public Utilities Commission (SFPUC), 2005. *North Westside Groundwater Basin Management Plan*. April 2005.

SFPUC 2019a, Treatment Plant Factsheet*: San Francisco's Wastewater Treatment Facilities*. July 2019.

SFPUC, 2019b. San Francisco Groundwater Supply Project. Available at: https://www.sfwater.org/index.aspx?page=1136. Accessed September 26, 2019.

U.S. Climate Data, 2019, *http://www.usclimatedata.com/climate/san-francisco/california/united-states/usca0987.* Accessed November 15, 2009.

4.10 Land Use and Planning

This section assesses the potential for construction and operation of campus development under the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant land use and planning impacts. The section includes a description of the existing environmental setting as it relates to land use and planning, and also provides a regulatory framework that discusses applicable University and local plans and policies. The section presents the significance criteria used to evaluate impacts on land use and planning, and the results of the impact assessment, including any significant impacts and associated mitigation measures.

4.10.1 Environmental Setting

Regional Setting

The regional setting for the proposed CPHP is the City and County of San Francisco, a relatively densely developed urban environment that is built out in most areas. Few large tracts of vacant or underused land are available for new development. San Francisco consists of a number of neighborhoods, each with its own unique physical characteristics and mix of land uses.

Local Setting

The Parnassus Heights campus site occupies about 107 acres of land on and at the base of Mount Sutro in the Inner Sunset mixed-use neighborhood. As illustrated in Figures 3-1 through 3-4 in Chapter 3, *Project Description*, the campus site is bounded by Carl and Irving Streets to the north, Third Avenue and Fifth Avenue to the west, the Cole Valley/Ashbury Heights neighborhoods and the City's Interior Greenbelt to the east, and Clarendon Avenue, Christopher Drive and Crestmont Drive in the City's Forest Knolls neighborhood to the south.

UCSF's facilities are concentrated in the northern portion of the campus site on both sides of Parnassus Avenue where Moffitt and Long Hospitals, the four schools (dentistry, medicine, nursing, and pharmacy), clinics, research, auxiliary services, housing, parking and other support uses are located. The 61-acre Mount Sutro Open Space Reserve (Reserve) occupies the central and southern portion of the campus site, rising up to 400 feet in elevation above Parnassus Avenue. The Aldea Housing complex is located in the southeastern portion of the campus site off Clarendon Avenue and is surrounded by the Reserve.

Moderate- and medium-density residential areas, predominantly with two to three dwelling units per lot, are located immediately north and west of the campus site. A neighborhood commercial district is located to the west along Irving and Judah Streets and 9th Avenue. Primarily single-family dwellings in the Cole Valley/Ashbury Heights neighborhoods are adjacent to the east, and neighborhood commercial uses are located on Cole and Carl Streets. There is also some moderate-high density residential to the southwest, on Fifth and Sixth Avenues. Single-family housing is located to the south of the Aldea Housing complex across Christopher Drive in the Forest Knolls neighborhood. Finally, the Sutro Tower, a 977-foot-tall TV and radio antenna tower, is located approximately 900 feet to the south of the campus site across Clarendon Avenue.

Several parks and open space areas of varying scales are located near the campus site. Golden Gate Park, an approximate 1,000-acre facility housing a variety of local and regional attractions, is located approximately 400 feet north of the campus site's north boundary while the Interior Greenbelt, a 21-acre urban forest, is located immediately adjacent to the eastern boundary of the Reserve. The 1.5-acre Grattan Playground is located approximately 1,000 feet east of the campus site's east boundary while the 0.6-acre Richard Gamble Memorial Park is located about 2,000 feet northeast of the campus site. Please see Section 4.14, *Recreation*, for additional detail on recreational facilities in the project vicinity.

4.10.2 Regulatory Framework

UCSF

UCSF 2014 LRDP

Each campus within the University of California system is required periodically to prepare a Long Range Development Plan (LRDP), which sets forth concepts, principles, and plans intended to guide future physical growth and change of the campus. Current development at UCSF is guided by the 2014 LRDP, which includes specific policies related to future program development and space needs at all UCSF campus sites, including the Parnassus Heights campus site.

The 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following 2014 LRDP objectives relate to land use:

Campus Wide Objectives

1. **Respond to the City and Community Context**
   - A. Acknowledge and respond to local zoning and height and bulk limitations to the extent possible.
   - C. Design new buildings to be sensitive to the surrounding neighborhood and landscape, taking into account use, scale, potential noise generation, and density.
   - D. Incorporate pedestrian-friendly urban design principles to relate campus buildings to surrounding streetscape and neighborhoods.
2. **Accommodate UCSF's Growth Through 2035**
   - A. Meet physical needs for growth in research, clinical, and instructional programs at appropriate locations.
   - B. Address the need for campus housing for students, postdoctoral scholars, house staff and junior and incoming faculty at main campus sites by constructing an adequate number of new units while taking into account financial feasibility and physical site constraints.

C. Provide additional amenities such as retail, permanent child care facilities, recreation and fitness facilities, improved outdoor areas, and other support services to the extent feasible, to enhance the quality of campus life and the public realm.

D. Locate programs and activities at campus sites where they are suitable and compatible with UCSF's missions, and best foster collaboration, accommodate interdependent programs and reinforce academic and operational relationships.

E. Locate buildings in accordance with campus site-specific objectives, functional zones, and other LRDP elements related to open space, transportation, and utilities.

F. Site and design buildings and develop open space in accordance with the universal planning and design principles contained in UCSF's *Physical Design Framework.*

Site Specific Objectives

1. Parnassus Heights

A. Continue to promote excellence and leadership in health science education, maintaining the Parnassus Heights campus site as the central location for classroom instruction.

B. Ensure that adequate space is provided to foster collaboration and to facilitate the inter-dependence and connectivity for operational efficiency and effectiveness of instruction, clinical, research and support uses in close physical proximity to each other.

C. Ensure that Long Hospital and the New Hospital Addition have adequate clinical and administrative support and are aligned with education, research and specialized care programs and support that remain at the campus site.

D. Provide additional campus housing and improve campus life amenities including outdoor space.

F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.

While not objectives or regulations, the UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Land Use

LU1. Plan for growth and renovations that are substantially consistent with use limitations and height and bulk limitations in City planning and zoning codes that exist at the time UCSF initiates the site selection process for such growth and renovation projects. The University should consider City planning proposals that are underway. UCSF will endeavor to be consistent with applicable land use plans and mitigation approaches where consistent with UC policy, while respecting specific neighborhood plans and concerns.

With respect to other provisions of the planning and zoning codes, such as off-street parking, UCSF will comply with such provisions or, if unable to comply strictly, will attempt to address impacts of its development with alternative measures, whether physical or operational.

LU3. Ensure that future UCSF development is compatible with physical surroundings in use, scale, and density, and that do not negatively affect surrounding land uses.

LU9. Preserve the Mount Sutro Open Space Reserve as permanent open space.

LU10. Work toward compliance with the Parnassus Heights space ceiling and adhere to boundaries for the Parnassus Heights campus site.

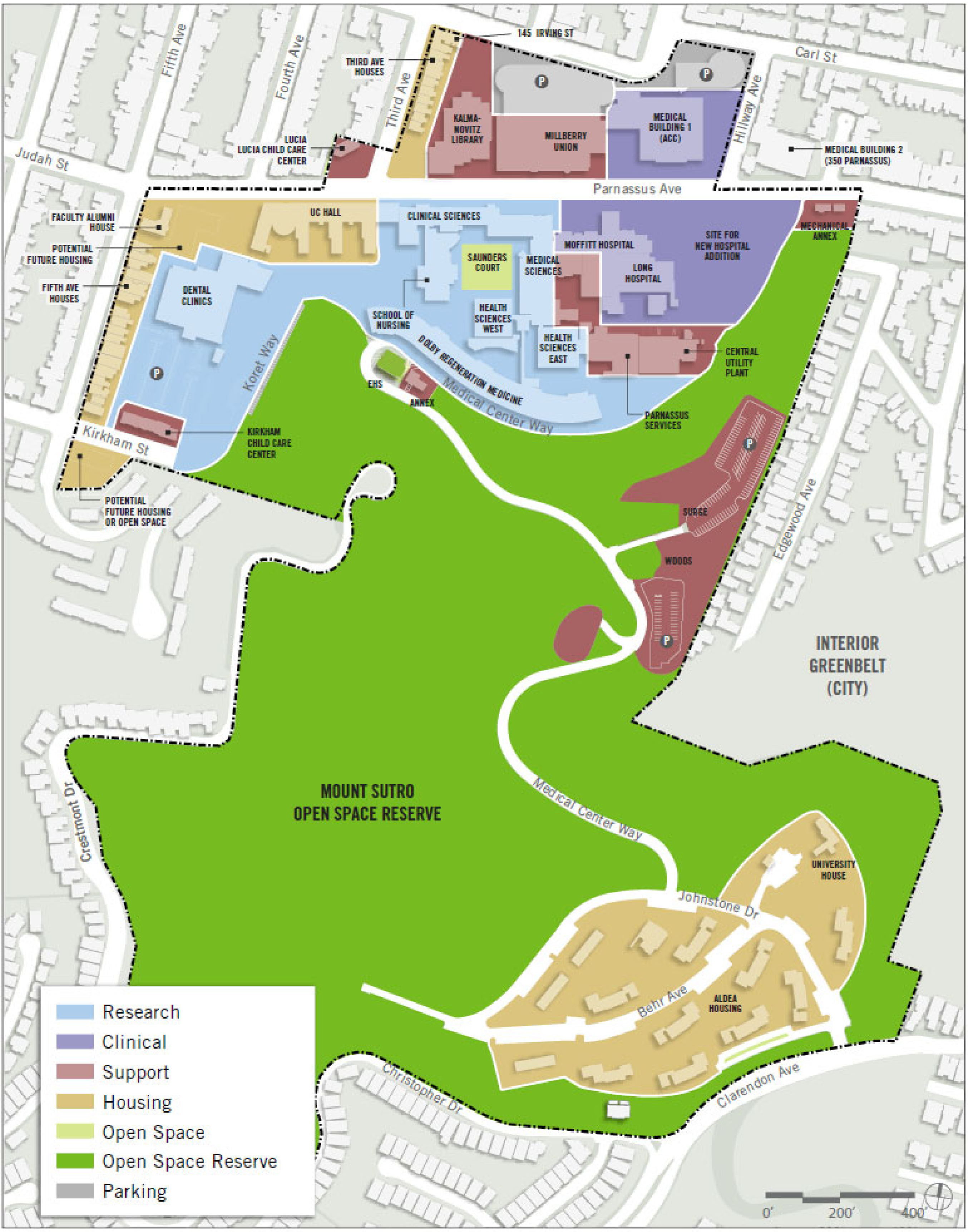
UCSF Functional Zones

The Land Use element of the UCSF 2014 LRDP included functional zone maps for all UCSF campus sites, including the Parnassus Heights campus site, to provide guidance for where certain types of uses are best located based on desired land use adjacencies and other geographic considerations. **Figure 4.10-1** presents the existing functional zones at the Parnassus Heights campus site. The UCSF 2014 LRDP included six categories of functional zones for the Parnassus Heights campus site: Research, Clinical, Support, Housing, Open Space, and Parking. As shown in Figure 4.10-1, the Research, Clinical and Support zones are located at the core of the campus site, primarily along Parnassus Avenue. The Housing zone is located along the western third of Parnassus Avenue, and Third and Fifth Avenues; as well as in the Aldea Housing complex in the southeast portion of the campus site, off Clarendon Avenue.

1976 Regents' Resolution

As discussed in Section 3.7.2 of the *Project Description*, the 1976 Regents' Resolution adopted a limit on the amount of built space at the Parnassus Heights campus site (with some housing excluded), commonly referred to as the "space ceiling," within the newly designated campus site boundaries. The resolution set the space ceiling at 3.55 million gsf. The 2014 LRDP amended the Regents' Resolution to exclude other residential square footage within the campus site from the space ceiling. Currently, Parnassus Heights contains approximately 3.68 million gross square feet (gsf) of space (excluding housing), approximately 128,600 gsf or 3.6 percent above the space ceiling.

The 1976 Regents' Resolution also recognized the principle of limiting the average daily population at the Parnassus Heights campus site to be substantially in accordance with the level projected in the 1976 LRDP (13,400 persons). The 2014 LRDP amended the Regents' Resolution to tie the average daily population goal for the Parnassus Heights campus site to population projections contained in the most recent LRDP EIR. At the time of adoption of the 2014 LRDP, the average daily population at Parnassus Heights was estimated at approximately 17,950 persons. As of 2019, the average daily population at the Parnassus Heights campus site is estimated at 17,440 persons.



SFO/D190291.00 - UCSF CPHP EIR2. Graphics/Illustrator

SOURCE: UCSF, 2014

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.10-1
Existing Functional Zones at Parnassus Heights Campus Site

ESA

City of San Francisco

Pursuant to the University of California's constitutional autonomy, development and uses on property under the control of the University that are in furtherance of the University's educational purposes are not subject to local land use regulation. However, UCSF reviews local land use policies as planning guidelines and has included those policies that are germane to the analysis of land use impacts in this Draft EIR.

In 1987, the City and UCSF entered into a *Memorandum of Understanding* (MOU) to foster harmonious relations between the City and UCSF regarding the growth and development of UCSF facilities within the City's boundaries. The MOU describes the responsibilities of the City and UCSF for the oversight of their respective land uses and the development, maintenance and use of physical facilities, including methods of communication and consultation regarding UCSF's proposed development.

UCSF consults with the City when planning new development, and obtains approvals, such as encroachment permits, if improvements are proposed within City rights-of-way adjacent to campus sites. In addition, it is UCSF's intent to adhere to the extent practicable, to City zoning codes related to building use, height, and bulk limitations; floor area ratios; and parking requirements or restrictions for the purpose of ensuring compatibility with the surrounding areas.

The major land use planning documents of the City are briefly described below.

San Francisco General Plan

The *San Francisco General Plan* provides general policies and objectives to guide land use decisions and includes policies that relate to environmental issues. Although the University is constitutionally exempt from local land use regulation whenever using properties under its control in furtherance of its educational mission, the University strives to be substantially consistent with local policies where feasible. The General Plan contains 10 elements (Commerce and Industry, Recreation and Open Space, Housing, Community Facilities, Urban Design, Environmental Protection, Transportation, Air Quality, Community Safety and Arts) that set forth goals, policies and objectives for the physical development of the City. Two General Plan elements that are particularly applicable to the proposed CPHP are the Urban Design and Transportation elements.

The Urban Design Element seeks to protect and enhance the aesthetic character of San Francisco. Objectives and policies that are relevant to the proposed street improvements along Parnassus Avenue include the following:

> **Objective 1:** Emphasis of the characteristic pattern which gives to the city and its neighborhoods an image, a sense of purpose, and a means of orientation.
>
> > ***Policy 1.5***: Emphasize the special nature of each district through distinctive landscaping and other features.
> >
> > ***Policy 1.6***: Make centers of activity more prominent through design of street features and by other means.

> ***Policy 1.9*****:** Increase the clarity of routes for travelers.

The Transportation Element of the General Plan provides policies and objectives related to transportation, congestion management, circulation, transit, alternative modes of transit (bicycles and walking), parking, and movement of goods. Objectives and policies that are relevant to the proposed street improvements along Parnassus Avenue that are included as part of the proposed CPHP include the following:

> **Objective 23:** Improve the City's pedestrian circulation system to provide for efficient, pleasant, and safe movement.
>
>> ***Policy 23.1*****:** Provide sufficient pedestrian movement space with a minimum of pedestrian congestion in accordance with a pedestrian street classification system.
>>
>> ***Policy 23.2*****:** Widen sidewalks where intensive commercial, recreational, or institutional activity is present, sidewalks are congested, where sidewalks are less than adequately wide to provide appropriate pedestrian amenities, or where residential densities are high.
>>
>> ***Policy 23.5*****:** Establish and enforce a set of sidewalk zones that provides guidance for the location of all pedestrian and streetscape elements, maintains sufficient unobstructed width for passage of people, strollers and wheelchairs, consolidates raised elements in distinct areas to activate the pedestrian environment, and allows sufficient access to buildings, vehicles, and streetscape amenities.
>>
>> ***Policy 23.6*****:** Ensure convenient and safe pedestrian crossings by minimizing the distance pedestrians must walk to cross a street.
>
> **Objective 27:** Ensure that bicycles can be used safely and conveniently as a primary means of transportation, as well as for recreational purposes.
>
>> ***Policy 27.1*****:** Expand and improve access for bicycles on city streets and develop a well-marked, comprehensive system of bike routes in San Francisco.
>
> **Objective 28:** Provide secure and convenient parking facilities for bicycles.
>
>> ***Policy 28.3*****:** Provide parking facilities which are safe, secure, and convenient.

San Francisco Planning Code

The San Francisco Planning Code regulates development in the City by prescribing the permitted uses and development standards consistent with the land use designations and policies in the *San Francisco General Plan*. The San Francisco Zoning Map defines the locations and boundaries of zoning use, building height and bulk limit districts. Zoning in San Francisco generally consists of multiple layers of districts. Use Districts are the base zoning districts that prescribe permitted land uses and most development standards (except height and bulk). Height and Bulk Districts are mapped separately from Use Districts and prescribe the permitted heights and bulk of buildings.

The Parnassus Heights campus site is primarily located in the City’s P (Public) Zoning District. P districts refer to land owned by a governmental agency that is in public use, including open space. Housing located along Third and Fifth Avenues is designated by the City as Residential House District, Two-Family (RH-2). Residential house districts are intended to recognize, protect, conserve and enhance residential areas characterized by limited scale in terms of building width and height. Structures in the RH-2 District usually do not exceed 25 feet in width or 40 feet in height.

The developed areas of the campus site are located within the following City Height and Bulk Districts: 25-X, 40-X, 65-D, 80-D, 130-D, and 220-F. The locations with an “X” designation permit all floors of structures to cover the entire building footprint. The “D” designation limits floor plans above 40 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. The “F” designation limits floor plans above 80 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. The Reserve is located within the City’s Open Space Height and Bulk District, where the height and bulk of buildings and structures are determined in accordance with the objectives, principles and policies of the General Plan, and where no building or structure or addition thereto is permitted unless it is in conformity with the General Plan.

San Francisco Better Streets Plan

The Better Streets Plan focuses on creating a positive pedestrian environment through measures such as careful streetscape design and traffic calming measures to increase pedestrian safety. The Better Streets Plan includes guidelines for the pedestrian environment, which it defines as the areas of the street where people walk, sit, shop, play, or interact. Generally speaking, the guidelines are for design of sidewalks and crosswalks; however, in some cases, the Better Streets Plan includes guidelines for certain areas of the roadway, particularly at intersections.

4.10.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Physically divide an established community?

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

c) Exceed an LRDP EIR standard of significance by conflicting with local land use regulations such that a significant incompatibility is created with adjacent land uses?

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topic for the reasons described below:

- ***Physically divide an established community*.** No development outside of the established campus boundary is proposed, and no intrusion into, or division of, surrounding residential communities would occur under the proposed CPHP, including the three Initial Phase projects and the Initial Phase improvements. The Parnassus Heights campus site would continue to remain as a distinct entity, consisting of educational and medical land uses that are woven into the fabric of the surrounding neighborhood, and the boundary of the campus site would not change as a result of the proposed CPHP. While the extension of 4th Avenue under the proposed CPHP would add a new roadway on the Parnassus Heights campus site, this extension would occur entirely within the campus site boundaries and would not intrude into the surrounding neighborhood. As the proposed CPHP would not physically divide an established community, this topic will not be evaluated further in this section.

Approach to Analysis

The examination of land use impacts is based on information obtained from the proposed CPHP; review of published environmental documentation and land use studies of the Parnassus Heights campus site; and review of documents pertaining to land use published by the City of San Francisco, including applicable elements of the General Plan. The analysis discusses whether the proposed CPHP would be consistent with applicable land use plans and policies that were adopted for the purpose of avoiding or mitigating an environmental effect. Land use policies are policies that pertain to the type, location and physical form of new development. For this analysis, policies "adopted for the purpose of avoiding or mitigating an environmental effect" are considered those that, if implemented and adhered to, would avoid or mitigate physical impacts on the environment. For each potential impact, the analysis compares the impact to the standards of significance listed above and determines the impact's level of significance under CEQA.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact LU-1: Implementation of the CPHP would not cause a significant environmental impact due to a conflict with land use plans, policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

As noted above, pursuant to the University of California's constitutional autonomy, development and uses on property under the control of the University that are in furtherance of the University's educational purposes are not subject to local land use regulation. The University is the only agency with land use jurisdiction over programs and projects proposed on the Parnassus Heights campus site, and the 2014 LRDP is the applicable land use plan adopted by the University for guiding the development of the campus site while avoiding or mitigating its environmental impacts. The proposed CPHP, including the three Initial Phase projects and Initial Phase improvements, is evaluated below for its potential to conflict with the 2014 LRDP. The proposed CPHP is also evaluated for potential conflict with the 1976 Regents' Resolution, as amended. The proposed CPHP includes certain off-campus street improvements along Parnassus Avenue. An evaluation of the potential for those street improvements to conflict with City policies that pertain to streets is also provided below.

Consistency with UC Plans and Policies

CPHP

Consistency with the 2014 LRDP

As stated in Chapter 3, *Project Description*, since the adoption of the 2014 LRDP and certification of the 2014 LRDP FEIR, UCSF undertook a planning process to re-envision and revitalize the Parnassus Heights campus site as a whole, to integrate UCSF's clinical, educational, and research missions in ways that promote collaboration and synergies in the UCSF Parnassus Heights campus community. The planning process resulted in the development of the CPHP, which proposes a long-term development framework for the revitalization of the Parnassus Heights physical environment and is intended to ensure that a modernized Parnassus Heights enhances UCSF's status as an anchor institution in San Francisco and a leading academic medical center in the region, state and nation.

The proposed CPHP is a comprehensive land use plan intended to guide growth and other physical changes at the Parnassus Heights campus site through 2050. The proposed CPHP sets forth general types of campus development and land uses to support projected population, clinical and research growth at the Parnassus Heights campus site. It also sets forth objectives to guide decisions for future facilities to meet needs over the next 30 years and it projects the quantities and uses of new and/or renovated building space needed during this time frame. The proposed CPHP includes an updated land use or "functional zone" map for the Parnassus Heights campus site (see Figure 3-15 in Chapter 3*)*, which would guide the location of future capital construction and infrastructure development. The proposed CPHP also references community planning principles that formalize UCSF's commitment to communicate with neighbors regarding its space needs and potential future development, in order to identify potential community concerns that may arise from UCSF's physical development prior to the time that individual projects are brought forward for approval.

As described in Chapter 3, the CPHP does not substantially depart from the planning principles and concepts set forth in the 2014 LRDP. The Plan generally would continue to focus future development in the same areas of the core campus as previously envisioned under the 2014 LRDP. The CPHP identifies opportunity sites for new buildings and major renovations of existing buildings; candidate buildings for demolition; opportunities for development of open space, and opportunities for improvements to on-campus mobility and circulation. The functional zones proposed under the CPHP (see Figure 3-17 in Chapter 3) are generally consistent with the existing functional zones established for the Parnassus Heights campus site under the 2014 LRDP, but modified where appropriate to reflect proposed changes in land use that would occur under the CPHP. Under the proposed CPHP, the functional zone of the area occupied by UC Hall, which is the site of the RAB project, would be changed from Housing to Research, while the functional zone of the site of the proposed West Side Housing project would be reclassified from Research to Housing. In addition, the CPHP would reclassify the portion of the Reserve that could be occupied by the proposed New Hospital from Open Space Reserve to Clinical.

The functional zone changes proposed under the CPHP are all internal to the campus site and do not involve a functional zone change that would place a new use adjacent to existing developed land uses outside of the campus site boundaries in such a way to create a land use conflict (the aforementioned potential zone change to accommodate the New Hospital would involve an extension of the existing Clinical zone in an easterly direction such that the clinical uses would be closer to existing off-site residential uses than at the present time. The potential effect of this change is addressed under Impact LU-2 below). Further, the zone changes would not result in land use conflicts with adjacent existing land uses on the campus site, because compatibility between adjacent existing and proposed functional zones was taken into consideration in developing the proposed zones in the CPHP. Existing land use patterns reflect campus development guided by the planning principles embodied in the previous LRDPs. The CPHP remains consistent with the same planning principles. Therefore, implementation of the CPHP would have a less-than-significant impact regarding conflict with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

However, because the University intends to use the CPHP as the primary planning document for the Parnassus Heights campus site, and because the CPHP proposes some revisions to the 2014 functional zones, revisions to the building space program, an update to the projected daily population that would be on the campus site as well as revisions to the proposed amount of space at Parnassus Heights identified in the 2014 LRDP, an amendment of the 2014 LRDP would be required. The proposed amendment to the 2014 LRDP includes the substantial revision of Chapter 4, *Parnassus Heights*, to incorporate concepts and proposals of the CPHP, as well as a text change in Chapter 3, LRDP Framework, to clarify that certain campus-wide objectives are not applicable to the New Hospital. In addition, the proposed amendment to the 2014 LRDP includes an update to Appendix E, *UCSF Greenhouse Gas Reduction Strategy*. Following public review, the CPHP Final EIR and proposed LRDP amendment would be submitted to the Regents for their approval.

Mitigation: None required.

Consistency with Space Ceiling

In conjunction with the proposed CPHP, UCSF is proposing that the Regents amend the 2014 LRDP by reaffirming certain continuing commitments and increasing the space ceiling limit set forth in the 1976 Regent's Resolution, as amended. The proposed CPHP would not conflict with the space ceiling, as amended, and it reaffirms the University's continuing commitments in the Resolution by 1) maintaining the designation of the Mount Sutro Open Space Reserve as permanent open space; 2) continuing to respect the Parnassus Heights campus site boundary established in 1976; and 3) continuing to adhere to the expansion restriction area within which UCSF would not acquire property or lease residential property. While, as discussed above, the CPHP could require the re-designation of an area of the Reserve of about 0.15 acre[1] adjacent to Medical Center Way from Open Space Reserve to Clinical, the University also proposes to re-

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[1] Excluding the widening of Medical Center Way adjacent to the proposed New Hospital, which would be necessary for fire safety purposes. The amount of acreage for the widening of Medical Center Way is to be determined.

designate an equivalent or greater acreage of other land within the campus site to Open Space Reserve so that there would be no decrease in the size of the Reserve.

However, in order for UCSF to retain its leadership position in patient care, research, and education and provide an adequate amount of program space at the Parnassus Heights campus site, the proposed CPHP requires that both the space ceiling limit and the population projections in the resolution be revised. To accommodate the planned CPHP programs, the space ceiling would need to be revised from the current limit of 3.55 million gsf to a proposed 5.05 million gsf, excluding housing (an increase of approximately 1.5 million gsf above the current space ceiling limit), and the population commitment revised from approximately 18,500 to nearly 25,000. The environmental impacts that could result from the expanded space program and increased on-campus population are analyzed and disclosed in this Draft EIR, in the various impact category sections, and for those impacts that are determined to be significant, mitigation measures are set forth to avoid or reduce the impacts to the maximum extent feasible. Based on the information in this Draft EIR and other relevant information, the Regents would determine whether or not to amend the 2014 LRDP to increase the space ceiling and the population projections. Upon approval by the Regents of the proposed LRDP amendment, the proposed CPHP would be consistent with the space and population commitments for the Parnassus Heights campus site and the impact would be less than significant.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project would mainly involve modifications to the existing Medical Building 1 in order to develop a new and/or reconfigured multistory vertical circulation space between Medical Building 1 and Millberry Union. The new/modified structure would be about 25,000 gsf and would include two additional stories on the Irving Street side, and one additional story on the Parnassus Avenue side. The area occupied by Medical Building 1 is within the Clinical functional zone while the area occupied by the Millberry Union is classified as a Support functional zone. No changes to the functional zones would be needed for the Irving Street Arrival project. Further, the Irving Street Arrival project in and of itself would not substantially increase the amount of building space on the campus site to require a change to the space ceiling. The Irving Street Arrival project would also not require an amendment of the 2014 LRDP. Based on the above, the Irving Street Arrival project would have a less than significant impact on land use and planning.

Mitigation: None required.

Research and Academic Building

The proposed Research and Academic building (RAB) is an approximately 270,000 gsf building that would occupy the site currently occupied by the 7-story UC Hall. The building site is classified as Housing under the existing functional zone in the 2014 LRDP, and this designation would need to be revised to Research under the CPHP to allow for the construction of the RAB project. For reasons set forth above for the CPHP, the proposed LRDP amendment to change the functional zones, including the site of the RAB, would not represent a conflict with a land use plan or policies adopted for the purpose of avoiding or mitigating an environmental effect. Although by itself, the RAB project would contribute to the need for the revisions to the space ceiling, the impact related to the Regents' Resolution set forth above for the CPHP as a whole, including the RAB project, would be less than significant.

Mitigation: None required.

Initial Aldea Housing Densification

During the initial phase of housing densification on the Aldea Housing complex, three existing 3-story housing structures would be replaced with three 8-story housing structures and one 5-story building. The entire Aldea Housing complex, is classified as Housing under the existing functional zones in the 2014 LRDP, and no change in land use zone would be required for the initial phase of the proposed Aldea Housing Densification project. Further, housing on the campus site is not subject to the space ceiling. Therefore, the proposed initial Aldea Housing Densification project would not contribute to the need for the proposed LRDP amendment or revisions to the space ceiling. Based on the above, the initial phase of the proposed Aldea Housing Densification project would have a less than significant impact on land use and planning.

Mitigation: None required.

Initial Phase Improvements

As described in Chapter 3, the Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. Those Initial Phase improvements that would occur within the campus site boundary are located within a number of proposed functional zones, and no further changes to these functional zones would be needed for each improvement. Further, the improvements would not, by themselves, substantially increase the amount of building space or the population on the campus site to require a change to the space ceiling. Finally, none of the improvements would require an amendment of the 2014 LRDP. Based on the above, the Initial Phase improvements would have a less than significant impact on land use and planning.

Mitigation: None required.

Consistency with San Francisco Plans and Policies

CPHP

The 2014 LRDP included the Parnassus Streetscape Plan, which included improvements (e.g., new paving, street furniture, lighting, and street trees, as well as sidewalk and crosswalk widening) along Parnassus Avenue generally between Fifth Avenue and Medical Center Way. Under the proposed CPHP, slight modifications to the Parnassus Avenue Streetscape Plan would be made to bring the plan into conformance with new development proposals that would front Parnassus Avenue. Those modifications would be specified as adjacent new buildings under the CPHP are designed. From an urban design perspective, the proposed improvements would strengthen the presence of the campus along Parnassus Avenue, thus further establishing the corridor as a distinct medical services district (General Plan Urban Design Element Policy 1.5). In addition, the creation of more useable outdoor pedestrian space would further establish the corridor as a center of activity (General Plan Urban Design Element Policy 1.6) and enhanced wayfinding improvements would increase the clarity of routes for travelers using all modes of transportation (General Plan Urban Design Element Policy 1.9).

With regard to pedestrian circulation, sidewalks along Parnassus Avenue would be improved to provide a minimum width of eight feet, thus providing sufficient space for pedestrian travel (General Plan Transportation Element Policy 23.1) and providing adequate sidewalk width where intensive institutional activity is present (General Plan Transportation Element Policy 23.2). In addition, this minimum sidewalk width would also provide sufficient unobstructed passage for people, strollers and wheelchairs and allow for sufficient access to buildings, vehicles, and streetscape amenities (General Plan Transportation Element Policy 23.6).

With respect to bicycle circulation, the proposed improvements would include “sharrow” lane markings for mixed traffic throughout the entire corridor, thus establishing a marked route for bicycles (General Plan Transportation Element Policy 27.1). In addition, the proposed improvements would include safe, secure, and varied bicycle parking options both on and off the street throughout the corridor (General Plan Policy Transportation Element 28.3).

The proposed improvements would also not conflict with the recommendations listed in the City’s Better Streets Plan. For example, hardscape bulb-outs would be located at every location where pedestrians are required to cross a street along Parnassus Avenue (Policies 2.1 and 2.3). Other proposed improvements that align with recommendations listed in the plan include pedestrian-friendly crossings (Policies 2.3 and 6.1), pedestrian-scale lighting (Policies 6.3, 6.7. and 10.5), and special paving and street furnishings Policy 10.4).

Finally, the City’s Better Streets Plan favors safe, convenient crossings on surface streets wherever possible instead of using pedestrian bridges and tunnels; pedestrian connections such as pedestrian bridges should only be installed where at-grade crossings are not feasible, such as freeways or rail lines (Policy 7.2). The proposed CPHP would include a pedestrian bridge crossing over Parnassus Avenue and the proposed pedestrian tunnel crossing underneath Parnassus Avenue. These facilities would conform to applicable City standards. In addition, the pedestrian bridge would provide enough clearance so that the overhead catenary wires for the electric bus system have enough clearance to allow for safe operation. As discussed above, the Parnassus Streetscape Plan includes crosswalk widening, which would the facilitate safe, convenient crossing of Parnassus Avenue. The pedestrian bridge and tunnel are required to safely transfer patients that are admitted in Medical Building 1 north of Parnassus Avenue to Moffitt Hospital south of Parnassus Avenue. Currently, patients admitted in the Medical Building 1 have to be transported across Parnassus Avenue by ambulance to Moffitt Hospital, thus increasing traffic and congestion along the roadway. Given this unique circumstance and that UCSF plans on improving pedestrian access across Parnassus Avenue, the proposed pedestrian bridge and tunnel do not substantially conflict with this policy.

In summary, the planned off-campus improvements along Parnassus Avenue would not conflict with City of San Francisco policies for streets found in the General Plan and the Better Streets Plan. The impact would be less than significant.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project would not involve any modifications to city streets. There would be no effect related to conflict with the City plans and policies.

Mitigation: None required.

Research and Academic Building

The proposed RAB project would involve modifications to Parnassus Avenue sidewalk and streetscape adjacent to the project site. These improvements would be designed to conform to City plans and policies discussed above. There would be no conflict and the impact would be less than significant.

Mitigation: None required.

Initial Aldea Housing Densification

The proposed initial Aldea Housing Densification project would not require any modifications to city streets. There would be no effect related to conflict with City plans and policies.

Mitigation: None required.

Initial Phase Improvements

Some of the Initial Phase improvements, such as implementation of the Parnassus Avenue Streetscape Plan and installation of miscellaneous neighborhood investment improvements in the public realm, would require modifications to city streets. These improvements would be designed to conform to City plans and policies discussed above. There would be no conflict and the impact would be less than significant.

Mitigation: None required.

Impact LU-2: Development under the proposed CPHP would not conflict with local land use regulations such that a significant incompatibility with adjacent land uses is created. (Less than Significant)

CPHP

Although new buildings proposed under the CPHP have not yet been designed, conceptual drawings indicate that most of the proposed buildings would be largely consistent with City's Height and Bulk districts for the building sites, if applicable. However, certain planned CPHP development, including the proposed New Hospital, proposed improvements at the Millberry Union, certain proposed West Side development, and the Aldea Housing Densification project, as currently conceptualized, would not be consistent with City Planning Code height and/or bulk regulations for their respective building sites. However, as explained below, the conflict with the City's height and bulk regulations would not result in a significant incompatibility with adjacent land uses.

New Hospital

The CPHP's proposed New Hospital would primarily occupy the area currently occupied by the seven-story LPPI building, but could also require a modification to the adjacent Reserve boundary. The site for the New Hospital is located within three height and bulk districts. A large portion of the building site is located within the City's 65-D Height and Bulk District, which restricts building heights to 65 feet and limits floor plans above 40 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. A portion of the New Hospital building site would extend within the City's 220-F Height and Bulk District to the west, which restricts building heights to 220 feet and limits floor plans above 80 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet; and the eastern most portion extends within the City's Open Space Height and Bulk District to the east, where the height and bulk of buildings and structures are determined in accordance with the objectives, principles and policies of the General Plan, and where no building or structure or addition thereto is permitted unless it is in conformity with the General Plan.

As currently envisioned, the proposed New Hospital would be 16 stories and up to 294 feet in height.[2] Although the building has not yet been designed, the 16-story building would exceed the City's height limits for the portions of the project site within the 65-D and 220-F Height and Bulk Districts. As for any portion of the New Hospital that would be located within the Open Space Height and Bulk District, although General Plan policies discourage the placement of buildings or additions within this district, the University plans to replace any area of the Reserve that is lost due to new development by designating new Reserve area elsewhere on the campus site in an amount equal to or greater than that area lost. This would serve to offset the reduction in open space at this location and ensure there would be no net reduction in open space. However, the proposed New Hospital would be located closer to nearby off-site residences on Edgewood Avenue to the east (located within a 40-X Height and Bulk District) than the existing LPPI building.

As noted above in Impact LU-1, the University is exempt from local zoning whenever using property under its control in furtherance of its educational mission. However, UCSF strives to adhere to City zoning codes to the extent possible in accordance with 2014 LRDP Objective 1: Respond to the City and Community Context. The 2014 LRDP also includes an objective (Objective 3) to ensure that its facilities are seismically safe. In order to meet the SB 1953 mandate at the Parnassus Heights campus site, inpatient uses currently at Moffitt Hospital must

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[2] Including potential rooftop observation deck and elevator vestibule that would occupy a portion of the roof. As currently conceived, the majority of mechanical equipment would be contained within various levels of the New Hospital to minimize the amount of equipment located on the roof; components of mechanical equipment located on the roof may slightly exceed the 294 feet in height.

be relocated prior to 2030, necessitating the construction of the New Hospital. To the extent feasible, UCSF would design the New Hospital to avoid or minimize the effects of the conflict with the City's Planning Code, however, it would not be possible to replace clinical uses currently in Moffitt Hospital with a new hospital that complies with the City's height and bulk district regulations that pertain to the site. As discussed in greater detail in the Space Needs Assessment, it is neither possible, given current code requirements, modern clinical space needs, and physical limitations of the existing Moffitt Hospital, nor cost effective to retrofit Moffitt Hospital to provide the number of beds that it could provide once retrofitted. Further, based on observed shortages in the availability of beds, especially intensive care unit (ICU) and acute care beds; an analysis of demographic trends that indicate that Parnassus Heights will need to serve not only a larger population but also a population that includes more elderly patients; an analysis of the demand/need for private rooms (versus shared rooms/wards); and an analysis of trends in health care which show an increased need for tertiary and quaternary health care, UCSF has determined that a larger hospital is needed that not only replaces the 150 beds that are currently in Moffitt Hospital and the beds that would be reduced in Long Hospital once it is upgraded to current standards, but also provides an additional 200 beds, along with other necessary facilities that include additional operating rooms, additional emergency room bays and spaces, additional interventional labs, and ambulance bays. The New Hospital is planned to be located at the LPPI site so that it is adjacent to Long Hospital which would continue to provide 291 beds, and Moffitt Hospital which would be seismically retrofitted and used for clinical operations in support of both Long Hospital and the New Hospital. This co-location of clinical uses would allow UCSF to operate more efficiently, allow the hospitals to share resources, and also minimize travel for patients and staff. In addition, the New Hospital would replace an existing building on the campus site, and in an area already built out with other similar UCSF facilities, such as Moffitt Hospital and Long Hospital. For these reasons, on balance, the proposed New Hospital would be compatible with adjacent land uses and would not create a significant land use impact.

However, the introduction of the New Hospital would result in certain aesthetic, wind and noise effects at nearby residential land uses, as addressed in Sections 4.1 and 4.11 in this EIR. As described in Section 4.1, Impact AES-2 finds that the New Hospital would be the most noticeable visual change under the CPHP program, and would contrast sharply both in height and scale with the nearby residential development; however, with the proposed amendments to the 2014 LRDP, the CPHP would not conflict with applicable zoning and other regulations governing scenic quality. Impact AES-3 finds that with implementation of appropriate design standards and exterior materials for the new buildings, potential light and glare impacts of the CPHP, including from the New Hospital, would be reduced to a less-than-significant level. Section 4.1, Impact AES-4 determines winds generated around New Hospital's northeast corner could exceed the wind hazard criterion; this significant impact would be addressed through wind tunnel testing once a preliminary design is available, and implementation of design changes to eliminate or reduce wind hazards to the extent feasible. Increases in operational noise levels from new building development, including the New Hospital, would be mitigated to a less-than-significant level through implementation of proper noise reduction design measures to ensure compliance with the applicable noise code.

Other CPHP Development

The westernmost portion of existing Medical Building 1 and adjacent Millberry Union are located within the City's 80-D Height and Bulk District. This height and bulk district restricts building heights to 80 feet and limits floor plans above 40 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. Under the CPHP, proposed buildings heights for these improvements as measured along Parnassus Street (up to 64 feet) would be within the heights allowed by this City zoning district. However, building heights as measured along Irving Street for the proposed Irving Street Arrival project (up to 86 feet) under the Initial Phase, and for improvements at the adjacent Millberry Union (up to 90 to 95 feet) under the Future Phase, would exceed the City's 80-foot height limit. The exceedance of height restrictions on Irving Street by 6 to 15 feet would represent a nominal increase above the height limit of about 8 to 19 percent. In addition, the Irving Street Arrival project would enhance the entrance to campus, thus better linking the campus site with the surrounding neighborhood. As a result, the proposed improvement would be compatible with adjacent land uses and the impact would be less than significant.

The compatibility of the proposed RAB project with existing City height and bulk zoning is described under RAB, below.

The CPHP's proposed West Side development would occupy the general area currently occupied by the Dental Clinics, West Side parking lot, and the Kirkham Child Care Center. The northern portion of this site is mostly located in the City's 130-D Height and Bulk District, which restricts building heights to 130 feet and limits floor plans above 40 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. The southern portion of the proposed West Side development is mostly located within the City's 40-X Height and Bulk District, which restricts building heights to 40 feet and permits all the floors of the structures to cover the entire building footprint. A small portion of the proposed West Side development would be located within an OS Height and Bulk District. The proposed West Side development would consist of structures bisected by the proposed 4th Avenue extension. The structures to the east of the 4th Avenue extension would be up to 130 feet in height while the three structures to the west of the 4th Avenue extension would be up to 79 feet in height. The heights of the structures on the northern portion of this site would meet the height requirement of the 130-D Height and Bulk District while the heights of certain structures on the southern portion of this site would exceed the height requirement of the 40-X Height and Bulk District. The proposed West Side development would be designed to minimize the effects of its conflict with the City's 40-X Height and Bulk District, and OS Height and Bulk District. The closest off-site land uses are residences located along the west side of 5th Avenue, approximately 150 feet west of the West Side Housing development. The off-site residences would be buffered by existing residences within the campus site boundary along the east side of 5th Avenue, which are approximately 35 feet in height. In addition, as indicated above, the heights of the proposed West Side development would be stepped back from 5th Avenue so the heights of the structures on the campus site would get progressively taller to the east. For these reasons, the proposed West Side development would be compatible with adjacent land uses, and the impact would be less than significant.

The Aldea Housing complex is located within a 40-X Height and Bulk District. Under the CPHP's proposed Aldea Housing Densification project (occurring in the Initial and Future Phases), the 12 existing 3-story housing buildings would be replaced with three 5-story housing buildings (up to 60 feet in height) and nine 8-story housing buildings (up to 96 feet in height). As a result, the height of the proposed buildings would exceed the City's height limit for this site. However, the Aldea Housing Densification project would not result in a change of land use; the land use would remain residential. In addition, the new structures would generally be located on the building footprints of the structures to be demolished. As a result, the new structures would remain at least approximately 170 feet from the nearest off-site land uses, which are single-family residential uses located along the south side of Christopher Drive. Furthermore, given that the new residential structures are proposed in generally the same location as the buildings being removed, the proposed densification of the Aldea Housing complex would not require substantial removal of, or alteration to, existing trees and other vegetation located between the Aldea Housing complex and off-site residences. The vegetation would continue to act as a visual buffer between the uses. Finally, the proposed new Aldea Housing development would adhere to a number of best practices in sustainable design, including establishing discrete façade treatments and a design language that embraces context, and prioritizing the use of natural materials for building design. For these reasons, the Aldea Housing Densification project would be compatible with adjacent land uses and the impact would be less than significant.

Separate from the buildings that would be demolished or added to the campus site, the CPHP identifies existing buildings on the campus site that would be renovated under the Plan. These include the Health Sciences Instruction and Research (HSIR) Towers and the Medical Sciences Building. As the renovations to these buildings would not change the height and bulk of these buildings, there would be no impact with respect to conflicts with City regulations due to these renovations.

Mitigation: None required.

Irving Street Arrival

As described above, the building heights as measured along Irving Street for the proposed Irving Street Arrival project (up to 86 feet) would exceed the City's 80-foot height limit, although proposed building height for this project as measured along Parnassus Street (up to 64 feet) would be within the heights allowed in this City zoning district. For the reasons described above, the proposed improvement would be compatible with adjacent land uses and the impact would be less than significant.

Mitigation: None required.

Research and Academic Building

The proposed RAB project would occupy the area currently occupied by the 7-story UC Hall and nearby School of Nursing. The site for the RAB project is located within the City's 130-D Height and Bulk District. This district restricts building heights to 130 feet and limits floor plans above 40 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet. The proposed RAB would be eight stories and up to 130 feet in height. As a result, the height of the proposed RAB would not exceed the City's height limit for this site. With respect to the bulk limitations for the site, the proposed RAB will adhere the City's floor plan limits for the "D" Bulk district. The RAB would be somewhat taller in height than the adjacent Clinical Sciences building, which is 7 stories or approximately 100 feet in height; although the RAB project would be shorter than certain other existing campus site buildings along Parnassus Avenue (e.g., Medical Sciences Building and Moffitt Hospital). Given these considerations, the proposed building would be generally compatible with adjacent land uses and the impact would be less than significant.

Mitigation: None required.

Initial Aldea Housing Densification

The initial Aldea Housing Densification project is a subset of the overall Aldea Housing Densification project: three existing 3-story housing structures would be replaced with three 8-story housing structures (up to 96 feet in height) and one 5-story housing structure (approximately 60 feet in height). As discussed above, this would exceed the City's height limit of 40 feet for this site. For the reasons described under CPHP for the overall Aldea Housing densification, the initial Aldea Housing Densification project would be compatible with adjacent land uses, and the impact would be less than significant.

Mitigation: None required.

Initial Phase Improvements

The Initial Phase improvements do not involve the construction of new buildings or structures. Therefore, the height and bulk district requirements for the site of each improvement do not apply, and there would be no conflict with local land use regulations such that a significant incompatibility with adjacent land uses would occur.

Mitigation: None required.

Cumulative Impacts

Impact C-LU-1: The proposed CPHP, in combination with past, present, and reasonably foreseeable future projects, would not result in a conflict with land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect or a conflict with local land use regulations such that a significant incompatibility with adjacent land uses is created. (Less than Significant)

The Parnassus Heights campus site is situated in a built-out urban area surrounded by a mix of land uses. Generally, opportunities for new development are limited, and future campus growth would require building replacement rather than new construction on undeveloped tracts of land. Potential growth in the vicinity of the campus site would also be limited to the intensification of existing uses rather than a substantial change from established land uses. Future development on the campus site would comply with the CPHP and amended LRDP, and anticipated development in the campus vicinity would generally conform with objectives and policies found in the San Francisco General Plan and permitted uses and height and bulk requirements found in the San Francisco Planning Code. Therefore, cumulative development would not result in a conflict with land use plans and policies adopted by the University and the City for the purposed of avoiding or mitigating environmental impacts. The cumulative impact would be less than significant.

As discussed above under Impact LU-2, the clinical, research and residential uses planned under the proposed CPHP would not conflict with the campus site's P (Public) zoning designation as these uses are principally permitted. While under the CPHP, the proposed New Hospital, West Side Housing, Irving Street Arrival, Millberry Union improvements, and Initial and Future Aldea Housing Densification projects would not conform to the City's height and bulk standards for these sites, UCSF would design the projects to avoid or minimize the effects of this conflict with the City's Planning Code. With regard to other future development in the campus site vicinity, it would be subject to City review and approval, and would be expected to comply with local land use regulations such that a significant incompatibility is not created. For these reasons, the cumulative impact of the proposed CPHP and future development with regard to land use compatibility would be less than significant.

Mitigation: None required.

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4.11 Noise and Vibration

This section describes and evaluates the potential for the construction and operation of the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant noise and vibration impacts. The section contains a description of the existing local conditions of the campus site and the surrounding areas; includes a summary of the applicable regulations related to noise and vibration; identifies criteria used to determine impact significance, and provides an analysis of the potential noise and vibration impacts associated with the implementation of the CPHP as well as identifies feasible mitigation measures that could mitigate any potentially significant impacts.

4.11.1 Environmental Setting

Noise Background

Sound is characterized by various parameters that describe the rate of oscillation (frequency) of sound waves, the distance between successive troughs or crests in the wave, the speed that the sound wave travels, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound, and the decibel (dB) scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called “A-weighting,” expressed as “dBA.” The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. An increase of 10 dBA in the level of a continuous noise represents a perceived doubling of loudness. The noise levels presented herein are expressed in terms of dBA, unless otherwise indicated. **Table 4.11-1** shows some representative noise sources and their corresponding noise levels in dBA (HUD, 1985).

Planning for acceptable noise exposure must take into account the types of activities and corresponding noise sensitivity in a specified location for a generalized land use type. Some general guidelines are as follows: sleep disturbance can occur at noise levels above 35 dBA; interference with human speech begins at about 60 dBA; and hearing damage can result from prolonged exposure to noise levels in excess of 85 to 90 dBA (US EPA, 1974).

Attenuation of Noise

Noise from line sources, such as roadway traffic, attenuates (lessens) at a rate of 3.0 to 4.5 dBA per doubling of distance from the source, based on the inverse square law and the equation for cylindrical spreading of noise waves over hard and soft surfaces.

TABLE 4.11-1
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT

Examples of Common, Easily Recognized Sounds	Decibels (dBA) at 50 feet	Subjective Evaluations
Near Jet Engine	140	Deafening
Threshold of Pain (Discomfort)	130	
Threshold of Feeling – Hard Rock Band	120	
Accelerating Motorcycle (at a few feet away)	110	
Loud Horn (at 10 feet away)	100	Very Loud
Noisy Urban Street	90	
Noisy Factory	85	
School Cafeteria with Untreated Surfaces	80	Loud
Near Freeway Auto Traffic	60	Moderate
Average Office	50	
Soft Radio Music in Apartment	40	Faint
Average Residence Without Stereo Playing	30	
Average Whisper	20	Very Faint
Rustle of Leaves in Wind	10	
Human Breathing	5	
Threshold of Audibility	0	

NOTE: Continuous exposure above 85 dBA is likely to degrade the hearing of most people. Range of speech is 50 to 70 dBA.

SOURCE: United States Department of Housing and Urban Development, *The Noise Guidebook*, 1985.

Noise from point sources, including stationary mobile sources such as idling vehicles or onsite construction equipment, attenuates at a rate of 6.0 to 7.5 dBA per doubling of distance from the source, based on the inverse square law and the equations for spherical spreading of noise waves over hard and soft surfaces. For the purposes of this analysis, it is assumed that noise from line and point sources to a distance of 200 feet attenuates at rates of between 3.0 and 6.0 dBA per doubling of distance, and the noise from line and point sources at a distance greater than 200 feet attenuates at a rate of 4.5 to 7.5 dBA per doubling of distance, to account for the absorption of noise waves due to ground surfaces such as soft dirt, grass, bushes, and intervening structures (Caltrans, 2009).

Noise Descriptors

Time variations in noise exposure are typically expressed in terms of a steady-state energy level (L_{eq}) that represents the acoustical energy of a given measurement. L_{eq} is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period). The L_{90} (the noise level exceeded 90 percent of the time) is also a noise metric that can be used to describe existing ambient noise levels. The maximum noise level (L_{max}) is the maximum instantaneous noise level measured during the measurement period of interest. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dBA increment be added to "quiet time" noise levels to form a 24-hour noise descriptor called the day-night noise level (L_{dn}). The L_{dn} adds a 10-dBA penalty during the night hours (10:00 p.m. to 7:00 a.m.).

Health Effects of Environmental Noise

The World Health Organization (WHO) is perhaps the best source of current knowledge regarding the health effects of noise impacts because European nations have continued to study noise and its health effects, while the United States Environmental Protection Agency (USEPA) all but eliminated its noise investigation and control program in the 1970s.[1] According to WHO, sleep disturbance can occur when continuous indoor noise levels exceed 30 dBA or when intermittent interior noise levels reach 45 dBA, particularly if background noise is low. With a bedroom window slightly open (a reduction from outside to inside of 15 dB), the WHO criteria suggest that exterior continuous (ambient) nighttime noise levels should be 45 dBA or below, and short-term events should not generate noise in excess of 60 dBA. WHO also notes that maintaining noise levels within the recommended levels during the first part of the night is believed to be effective for the ability of people to initially fall asleep (WHO, 1999).

Other potential health effects of high noise levels identified by WHO include decreased performance for complex cognitive tasks, such as reading, attention span, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (again, generally after long-term occupational exposure, although shorter-term exposure to very high noise levels, for example, exposure several times a year to concert noise at 100 dBA, can also damage hearing). Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. WHO reports that, during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA or moderately annoyed with noise levels below 50 dBA.

Vehicle traffic and continuous sources of machinery and mechanical noise contribute to ambient noise levels. Short-term noise sources, such as truck backup beepers, the crashing of material being loaded or unloaded, and car doors slamming contribute very little to 24-hour noise levels but are capable of causing sleep disturbance and annoyance. The importance of noise to receptors depends on both time and context. For example, long-term high noise levels from large traffic volumes can make conversation at a normal voice level difficult or impossible, while short-term peak noise levels, if they occur at night, can disturb sleep.

Vibration Descriptors

Vibration is an oscillatory motion through a solid medium in which the motion’s amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe physical vibration impacts on buildings. Another useful vibration descriptor is known as vibration decibels or VdBs. VdBs are generally used when evaluating human response to vibration, as opposed to

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[1] The *San Francisco General Plan* Land Use Compatibility Guidelines for Community Noise, presented below in Figure 4.6-2, were created during the same era.

structural damage (for which PPV is the more commonly used descriptor). Vibration decibels are established relative to a reference quantity, typically 1 x 10^{-6} inches per second (FTA, 2018).

Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include people (especially residents, the elderly, and sick people), structures (especially older masonry structures), and vibration-sensitive equipment.

The background vibration velocity level in residential areas is typically 50 VdB or lower, and the threshold of perception for humans is approximately 65 VdB. A vibration level of 85 VdB in a residence can result in strong annoyance (FTA, 2018).

Existing Noise and Vibration Environment

Long-term environmental noise in urbanized areas is primarily dependent on vehicle traffic volumes and the mix of vehicle types. The existing ambient noise environment at the Parnassus Heights campus site is dominated by vehicular traffic on adjacent public streets, including Parnassus Avenue, Irving Avenue and Clarendon Avenue, internal private roadways and parking and loading areas within the campus site. Ambient noise levels on the campus site are also affected by noise generated by stationary equipment noise sources, particularly in the east portion of the campus core where principal campus support functions exist [e.g., Central Utility Plant (CUP)].

Ambient Noise Measurements

Ambient long-term (24-hour) and short-term (15-minute) noise measurement data were collected in 2014 in conjunction with the preparation of the 2014 LRDP Final EIR, and updated in October 2019 to characterize noise conditions on the campus site and its environs. Additionally, long- and short-term noise measurements were collected in 2017 as part of the Mount Sutro Vegetation Management Plan Final EIR. Noise measurement locations are shown in **Figure 4.11-1**. To characterize ambient noise in the campus site area, short-term measurement data were compiled for three locations in 2019 where existing off-site residential land uses are present near proposed CPHP development on the campus site, (see short-term measurements ST-1, ST-2 and ST-3 presented in **Table 4.11-2**. In addition, long-term noise data was collected in 2019 in the Aldea Housing complex in the southeast portion of the campus site (see LT-3 in **Table 4.11-3**).

Long-term monitoring location LT-1 is located at the top of the ridge at the eastern property line of the campus site. The noise environment at this location is dominated by noise generated by mechanical equipment at the CUP and delivery trucks at the loading docks behind Long Hospital at the campus site. Noise data indicate that these noise sources are consistent throughout the daytime and nighttime hours. Noise levels recorded at monitoring location LT-1 in 2017 reflect a reduced noise level (4 to 5 dBA less) from those recorded at the same location in 2014. Long-term monitoring location LT-2 is located at UC Hall. The noise environment at this location is dominated by Parnassus Avenue vehicle traffic, which is relatively high during daytime hours, but is largely reduced after 10:00 p.m.

SFO/D190291.00 - UCSF CPHP EIR2. Graphics/Illustrator

SOURCE: Google Earth, 2019; ESA, 2019

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.11-1
Noise Monitoring Locations

ESA

TABLE 4.11-2
SHORT-TERM AMBIENT NOISE LEVEL DATA IN THE PARNASSUS HEIGHTS CAMPUS SITE VICINITY

Measurement Location		Time	Noise Levels in dBA	
			Hourly L_{eq}	L_{max}
ST-1	Parnassus Avenue at 5th Avenue (2019): Existing off-site residential receptors near the proposed CPHP Research and Academic Building	11:00 am	63	80
ST-2	Kirkham Street at 5th Avenue (2019): Existing off-site residential receptors near the proposed CPHP West Side Housing	11:33 am	58	72
ST-3	Irving Street at Arguello Boulevard (2019): Existing off-site residential receptors near the proposed CPHP Irving Street Arrival	10:34 am	69	83
ST-4	Johnstone Drive at Behr Avenue (2017):	11:20 am	52	64
ST-5	Edgewood Trailhead at terminus of Edgewood Avenue (2017):	11:00 am	52	64
ST-6	Crestmont Drive at Devonshire Way (2017):	11:20 am	46	56

NOTE: See Figure 4.11-1 for noise measurement locations. L_{eq} represents the constant sound level; L_{max} is the maximum noise level.

SOURCE*:* Environmental Science Associates, 2019; Illingworth and Rodkin, 2018.

TABLE 4.11-3
LONG-TERM AMBIENT NOISE LEVEL DATA IN THE PARNASSUS HEIGHTS CAMPUS SITE VICINITY

Measurement Location		Day-Night Noise level (DNL)	Noise Levels in dBA	
			Daytime hourly average, L_{eq}	Nighttime hourly average, L_{eq}
LT-1	Campus Site east property line (2014): Along rear of adjacent existing Edgewood Avenue residences, near the proposed CPHP New Hospital	64	58	58
LT-1	Campus Site east property line (2017)	60	54	53
LT-2	UC Hall Balcony on Parnassus Avenue (2014).	61	58	53
LT-3	Behr Avenue (2019): Within existing Aldea Housing complex and the site of proposed Aldea Housing Densification	52	48	45
LT-4	Terminus of Crestmont Drive (2017):	53	50	43
LT-5	Christopher Drive 400 feet north of Crestmont Drive (2017)	55	53	41

NOTE: See Figure 4.11-1 for noise measurement locations.

SOURCE*:* Environmental Science Associates, 2014 and 2019; Illingworth and Rodkin, 2018.

Noise levels at the LT-1 and LT-2 monitoring locations were marginally in excess of 60. Noise levels at the LT-3, LT-4, and LT-5 monitoring locations (Aldea Housing complex, and south and west campus site perimeters) were recorded to be below 60 DNL.

Sources of Vibration

The primary vibration source in the campus site vicinity is SF Muni light rail operations on Irving Street along the northern campus site boundary. The FTA has published generalized ground-surface vibration levels for light-rail passenger trains which are presented in **Table 4.11-4**; the table presents only those vibration levels that correspond to light rail speeds that are representative of those occurring along Irving Street.

TABLE 4.11-4
GENERALIZED VIBRATION LEVELS (IN VdB) FROM LIGHT RAIL ACTIVITY

Train Speed	Distance from Tracks		
	30 Feet	50 Feet	100 Feet
10 Miles per Hour	62 VdB	59 VdB	53 VdB
20 Miles per Hour	68 VdB	65 VdB	59 VdB
30 Miles per Hour	72 VdB	69 VdB	63 VdB

SOURCE: FTA, 2018

Sensitive Receptors

Sensitive receptors for noise are generally considered to include nursing homes, senior citizen centers, hospitals with overnight accommodations, schools, churches, libraries, and residences. Land uses in the campus site vicinity are described in detail in Section 4.10, *Land Use and Planning*.

Sensitive land uses within the Parnassus Heights campus site includes its hospitals, the Aldea Housing complex, and housing along Third and Fifth Avenues, and Irving Street. There are also two child care centers within the Parnassus Heights campus site: the Kirkham Child Development Center at 10 Kirkham Street, and the UCSF Marilyn Reed Lucia Child Development Center at 601 Parnassus Avenue.

The off-site sensitive receptors nearest to the Parnassus Heights campus site are residential dwellings on Edgewood Avenue adjacent to the east campus site boundary, across Hillway Avenue from the east campus site boundary, on Irving and Carl Streets north of the campus site boundary, across Third Avenue, Fifth Avenue and Kirkham Street west of the campus site boundary, on Christopher Drive and Forest Knolls Drive adjacent to the south campus site boundary. Within a quarter mile of the campus site boundary, there are three public schools (Independence High School, Grattan Elementary School and Clarendon Alternative Elementary School) and several private child care centers.

Vibration sensitive receptors can include not only residences and other places where people would be expected to sleep, such as a hotel, nursing home, or hospital, but also locations where vibration-sensitive equipment may be in use such as microscopes and magnetic resonance imagery (MRI) equipment and recording studios. Vibration-sensitive receptors in the campus site vicinity consist of the noise-sensitive receptors identified above, existing MRI and microscopy uses at Moffitt Hospital and Long Hospital, as well as any research facilities that use vibration-sensitive equipment.

4.11.2 Regulatory Framework

Federal Regulations

Federal Aviation Administration

The Federal Aviation Administration (FAA) develops noise exposure maps that use average annual DNL noise contours around the airport as the primary noise descriptor. The FAA states that all land uses are considered compatible when aircraft noise effects are less than 65 decibels (dB) DNL. San Francisco International Airport and Oakland International Airport are over eight and 12 miles from the campus site, respectively. The campus site is outside the 55 dB CNEL noise contour of both airports (ACCDA, 2010 and SFO, 2015).

State Regulations

State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are collectively known as the California Noise Insulation Standards and are found in Title 24 of the California Code of Regulations.

The 2016 California Building Code (CBC, Title 24, Part 2 of the California Code of Regulations) requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a *Sound Transmission Class* (STC) of at least 50, meaning they can reduce noise by a minimum of 50 dB.[2] The CBC (section 1207.4, Allowable Interior Noise Levels) also specifies a maximum interior noise limit of 45 dBA (L_{dn} or CNEL) in habitable rooms, and requires that common interior walls and floor/ceiling assemblies meet a minimum STC rating of 50 for airborne noise.

UCSF

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP campus-wide objective relates to noise:

Campus-Wide Objectives

1. **Respond to City and Community Context**
    C. Design new buildings to be sensitive to the surrounding neighborhood and landscape, taking into account use, scale, potential noise generation, and density.

    F. Consider neighborhood and city-wide impacts related to UCSF's physical growth.

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[2] State Building Code section 1207.2.

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Environmental Planning and Safety

EP3. Meet or exceed city, state, and federal standards with respect to health and safety, noise and construction-related environmental impacts.

UCSF is not subject to local plans, policies, or ordinances whenever using land under its control in furtherance of its educational mission. However, it is UCSF policy to be consistent with such plans, policies, or ordinances to the extent feasible.

City of San Francisco

San Francisco General Plan

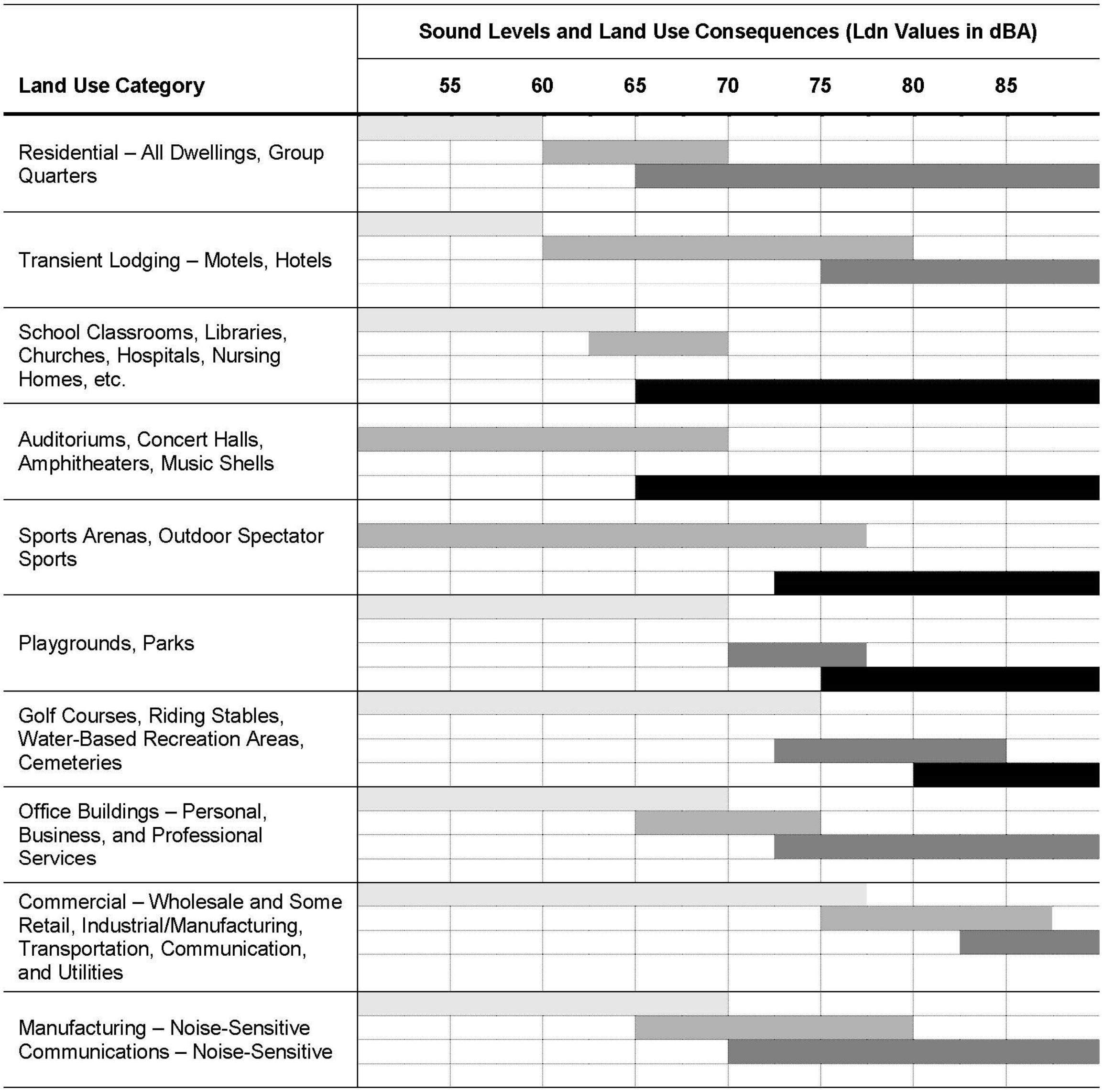
Land Use Compatibility Guidelines for Community Noise

The Environmental Protection Element of the *San Francisco General Plan* contains Land Use Compatibility Guidelines for Community Noise (CCSF, 1996). These guidelines, which are similar to but differ somewhat from state guidelines promulgated by the Governor's Office of Planning and Research, indicate maximum acceptable exterior noise levels for various newly developed land uses. The City's guidelines, which are presented in **Figure 4.11-2**, indicate exterior noise levels that might be inappropriate for sensitive land uses and would therefore require additional noise insulation considerations beyond standard practices. Though this figure presents a range of noise levels that are considered compatible or incompatible with various land uses, the maximum "satisfactory" noise level is 60 dBA (DNL) for residential and hotel uses; 65 dBA (DNL) for school classrooms, libraries, churches, and hospitals; 70 dBA (DNL) for playgrounds, parks, office buildings, retail commercial uses, and noise-sensitive manufacturing/communications uses; and 77 dBA for other commercial uses such as wholesale, some retail, industrial/manufacturing, transportation, communications, and utilities. If these uses are proposed to be located in areas with noise levels that exceed these guidelines, a detailed analysis of noise reduction requirements will normally be necessary prior to final review and approval.

Noise-Related Policies

The following policies of the *San Francisco General Plan* Environmental Protection Element relate to noise:

> ***Policy 10.1*:** Promote site planning, building orientation and design and interior layout that will lessen noise intrusion. Because sound levels drop as distance from the source increases, building setbacks can play an important role in reducing noise for the building occupants. Buildings sited with their narrower dimensions facing the noise source and sited to shield or be shielded by other buildings also help reduce noise intrusion. Although walls with no windows or small windows cut down on noise from exterior sources, in most cases it would not be feasible or desirable to eliminate wall openings. However, interior layout can achieve similar results by locating rooms whose use require more quiet, such as bedrooms, away from the street noise.



SOURCE: San Francisco Planning Department, *San Francisco General Plan*, Environmental Protection Element, adopted on June 27, 1996, http://www.sf-planning.org/ftp/General_Plan/I6_Environmental_Protection.htm#ENV_TRA_11, accessed December, 2019.

░ Satisfactory, with no special noise insulation requirements. Noise levels in this range are considered “Acceptable.”

▒ New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Noise levels in this range are considered “Conditionally Acceptable.”

▓ New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Noise levels in this range are considered “Conditionally Unacceptable.”

█ New construction or development should generally not be undertaken. Noise levels in this range are considered “Unacceptable.”

Figure 4.11-2
San Francisco Land Use Compatibility Chart for Community Noise

> ***Policy 10.2***: Promote the incorporation of noise insulation materials in new construction. State-imposed noise insulation standards apply to all new residential structures except detached single-family dwellings. Protection against exterior noise and noise within a building is also important in many nonresidential structures. Builders should be encouraged to take into account prevailing noise levels and to include noise insulation materials as needed to provide adequate insulation.
>
> ***Policy 11.1***: Discourage new uses in areas in which the noise level exceeds the noise compatibility guidelines for that use. New development should be examined to determine whether background and/or thoroughfare noise level of the site is consistent with the guidelines for the proposed use. If the noise levels for the development site….exceed the sound level guidelines established for that use, as shown in the accompanying land use compatibility chart, then either needed noise insulation features should be incorporated in the design or else the construction or development should not be undertaken.
>
> ***Policy 11.3***: Locate new noise-generating development so that the noise impact is reduced. Developments which will bring appreciable traffic into or through noise-sensitive areas should be discouraged, if there are appropriate alternative locations where the noise impact would be less. For those activities—such as a hospital—that need a quiet environment, yet themselves generate considerable traffic, the proper location presents a dilemma. In those cases, the new development should locate where this traffic will not present a problem and, if necessary, incorporate the proper noise insulation.

San Francisco Noise Ordinance

In San Francisco, regulation of noise is stipulated in Article 29 of the Police Code (Regulation of Noise), which states that the City's policy is to prohibit unnecessary, excessive, and offensive noises from all sources subject to police power. Sections 2907 and 2908 of Article 29 regulate construction equipment and construction work at night, while Section 2909 provides for limits on stationary-source noise from machinery and equipment. Sections 2907 and 2908 are enforced by the Department of Building Inspection, and Section 2909 is enforced by the Department of Public Health. Summaries of these and other relevant sections are presented below.

Sections Regulating Construction Noise

Sections 2907(a) and (b) of the Police Code state that it shall be unlawful for any person, including the City and County of San Francisco, to operate any powered construction equipment, regardless of age or date of acquisition, if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance. Exemptions from this requirement include:

- Impact tools and equipment with intake and exhaust mufflers recommended by the manufacturers and approved by the Director of Public Works as best accomplishing maximum noise attenuation; and
- Pavement breakers and jackhammers equipped with acoustically attenuating shields or shrouds recommended by the manufacturers and approved by the Director of Public Works as best accomplishing maximum noise attenuation.

Section 2908 prohibits any person, between the hours of 8:00 p.m. of any day and 7:00 a.m. of the following day, from erecting, constructing, demolishing, excavating for, altering, or repairing any building or structure if the noise level created is in excess of the ambient noise level by 5 dBA at the nearest property line unless a special permit has been applied for and granted by the Director of Public Works.

Sections Regulating Operational Noise

Section 2909 establishes a not-to-exceed noise standard for fixed sources of noise, such as building mechanical equipment and industrial or commercial processing machinery. Unlike the state building code (Title 24) standard, which is applicable to interior living space only, the standards in Section 2909(a), (b), and (c) are applicable outdoors, at the property line of the affected use, and vary based on the residential or commercial nature of the noise generator's use. For example, the noise limits for commercial and industrial properties (Section 2909(b)) provide that no person shall produce or allow to be produced a noise level more than 8 dBA above the local ambient level at the property plane. If the noise generated from commercial and industrial properties is generated from a licensed place of entertainment or other location subject to regulation by the Entertainment Commission, such use shall not produce or allow to be produced a noise level more than 8 dBC[3] above the local ambient level at the property plane in addition to the 8 dBA standard.

For noise generated by residential properties, the noise limits are 5 dBA above the ambient level at any point outside of the property plane of a residential use. The noise limits for public property provide that no person shall produce a noise level more than 10 dBA above the local ambient level at a distance of 25 feet or more on public property.

As is common for noise standards, the permitted noise level for fixed residential interior noise limits identified in Section 2909(d) is lower at night than during the day. For example, maximum noise levels at any sleeping or living room in any dwelling unit located on residential property must not exceed 45 dBA between 10:00 p.m. and 7:00 a.m., and 50 dBA between 7:00 a.m. and 10:00 p.m. None of the noise limits set forth in this section apply to activity for which the City and County of San Francisco has issued a permit that contains noise limit provisions that are different from those set forth in this article. Additionally, the Directors of Public Health, Public Works, or Building Inspection, or the Entertainment Commission, or the Chief of Police may grant variances to noise regulations, over which they have jurisdiction pursuant to Section 2916.

4.11.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the Irving Street Arrival, RAB and initial Aldea Housing Densification projects and the Initial Phase improvements, result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b) Generation of excessive groundborne vibration or groundborne noise levels?

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[3] C-weighted decibels include low-frequency sounds that are more common to amplified sound/concerts.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

d) Exceed an LRDP EIR operational standard of significance by contributing to an increase in average daily noise levels (L_{dn}) of 3 dB(A) or more at property lines, if ambient noise levels in areas adjacent to proposed development already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use?

With respect to criterion a) above, this analysis applies the restrictions of the City of San Francisco Police Code Sections 2907 and 2908 and the 90 dBA daytime construction noise criteria of the FTA for residential uses. Additionally, an increase of 10 dBA representing a doubling of perceived loudness is also considered, although not a regulatory threshold. With respect to criterion b) above, this analysis applies the thresholds published by Caltrans for vibration impacts that may result in building damage or human annoyance. See Approach to Analysis, below, for additional detail.

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topic for the reasons described below:

- ***For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.*** The proposed CPHP would not include development of land uses near an airport influence area. The FAA states that all land uses are considered compatible when aircraft noise effects are less than 65 decibels (dB) CNEL. As discussed above, San Francisco International Airport and Oakland International Airport are over eight and 12 miles from the campus site, respectively. The project site is outside the 55 dB CNEL noise contour of both airports (ACCDA, 2010 and SFO, 2015). No impact would occur, and this impact is not discussed further in this EIR.

Approach to Analysis

Construction Noise Assessment for CPHP

According to Section 2907 of the City's noise ordinance, it is prohibited to operate any powered construction equipment (non-impact), regardless of age or date of acquisition, if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment. Impact equipment such as pile driving and hoe rams are exempt from this requirement. To assess consistency with his Code requirement, published reference noise levels for standard construction equipment are compared to this Code requirement to determine whether CPHP projects would generate construction noise levels in excess of published standards.

Approach to Analysis of Initial Phase Projects, and Initial Phase Improvements

This section includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, and except where noted below (e.g., construction noise assessment), is analyzed at a program level in this EIR within the context of the overall CPHP and will be analyzed at a project level in a subsequent EIR when more details are available.

Construction Noise Assessment for CPHP and Irving Street Arrival, Research and Academic Building, New Hospital, and Initial Aldea Housing Densification, and Initial Phase Improvements

Given the anticipated concurrent construction of New Hospital with other Initial Phase projects, the combined construction noise effects of all four Initial Phase projects are considered in this noise analysis.

All construction under the CPHP, including the Initial Phase projects and Initial Phase Improvements, would comply with the restrictions established by Sections 2907 and 2908 of the San Francisco Police Code. As discussed in the *Regulatory Setting*, UCSF voluntarily strives to meet the City's Police Code, which sets limits on the hours during which construction activities can occur (between the hours of 7:00 AM and 8:00 PM) and requires that construction noise not exceed 80 dB(A) Maximum Noise Level (L_{max}) at a distance of 100 feet, although an exception to the City's Police Code allows the use of impact tools with appropriate controls and approval by the Director of Public Works or the Director of Building Inspection.

Additionally, for assessment of project-level construction noise impacts associated with the Initial Phase projects and Initial Phase Improvements, the quantitative evaluation of daytime construction noise effects is based on the general assessment methodology and criteria set forth in the Federal Transit Administration (FTA) guidelines for residential land uses which is an hourly 90 dBA L_{eq} (FTA, 2018) during daytime hours.

The FTA methodology for general assessment of construction noise entails a process for calculating the hourly dBA, L_{eq} for each stage of construction considering (1) the reference noise emission level at 50 feet for equipment to be used for each stage of construction, (2) the usage factor for each piece of equipment, and (3) the distance between construction centerline and receptors[4]. This methodology entails determining the resultant noise levels for the two noisiest pieces of equipment expected to be used in each stage of construction.

The FTA does not publish a software noise model; as such, the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) was used. The RCNM is used as the FHWA's national standard for predicting construction noise. The RCNM analysis includes the calculation of noise levels (L_{max} and L_{eq}) at incremental distances for a variety of construction equipment. The model inputs include acoustical use factors, L_{eq} values at various distances

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[4] In an urban area such as downtown San Francisco that have acoustically non-absorptive ground conditions, the ground factor is taken to be zero.

depending on the receptor location analyzed. Construction noise levels were calculated for both the demolition and the construction phases of each Initial Phase project.

In addition to the assessment of construction noise relative to Sections 2907 and 2908 of the San Francisco Police Code and the FTA's 90 dBA L_{eq} daytime standard at residential uses, this analysis applies an increase of 10 dBA or more over existing noise levels at sensitive receptor locations to warrant the implementation of construction noise control measures. Such as increase is a perceived doubling of loudness (Caltrans, 2013a).

Operational Stationary Source Noise Assessment for CPHP and the Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification and Initial Phase Improvements

Operational stationary sources include mechanical equipment such as heating, ventilation, and air conditioning (HVAC) equipment and backup generators. Because specific locations and specifications of these equipment are unknown at this point for both the CPHP and Initial Phase projects and Initial Phase Improvements, the analysis is generally a qualitative analysis that identifies existing code requirements that would serve to restrict noise from these sources and UCSF's intent to meet code requirements to the degree feasible. UCSF voluntarily strives to meet the City's Police Code, according to which stationary mechanical equipment noise for commercial and industrial uses is limited to 8 dB(A) in excess of the ambient noise environment. The Code also provides an interior noise limit, stating that noise levels from mechanical sources may not exceed 45 dB(A) between the hours of 10:00 PM and 7:00 AM or 55 dB(A) between the hours of 7:00 AM and 10:00 PM with windows open except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

Construction Vibration Assessment for CPHP and Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification and Initial Phase Improvements

The study area for evaluation of vibration impacts from construction encompasses the construction site and the nearest potentially affected sensitive receptors to that site. Construction vibration impacts are analyzed in terms of the potential of project-related vibrations to result in damage to nearby structures or buildings as established by Caltrans (Caltrans, 2013b). The Caltrans thresholds for potential architectural damage due to groundborne vibrations is 0.5 in/sec PPV for new residential structures and modern commercial buildings and 0.25 in/sec PPV for historic and older buildings. With respect to human annoyance, Caltrans considers vibrations of 0.04 in/sec PPV to be strongly perceptible and this is the criterion applied in this analysis.

Construction vibration impacts are analyzed in terms of the potential of project-related vibrations to result in human annoyance or interfere with the operation of vibration-sensitive equipment or uses (FTA, 2018). Vibration levels are predicted at various distances for equipment reasonably expected to be involved with project demolition and construction activities and impacts to receptors assessed based on the criteria established by Caltrans and FTA. The criterion for vibration-sensitive equipment is 65 VdB, as published by FTA.

Traffic Noise Assessment for CPHP and Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification and Initial Phase Improvements

Traffic noise modeling to address the effects of the traffic generated by the CPHP, including the proposed Irving Street Arrival, RAB, and initial Aldea Housing Densification projects and Initial Phase Improvements, was completed using a spreadsheet based on the FHWA Traffic Noise Model. Traffic noise level significance was determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by UCSF of a permanent increase in noise levels of 3 dBA or more if noise levels without the project already exceed those identified as appropriate for a given land use within the San Francisco General Plan, as presented in Figure 4.11-2.

Impact Analysis

Impact NOI-1: Construction activities under the CPHP would generate a substantial temporary increase in ambient noise levels in the vicinity of the construction project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Significant and Unavoidable with Mitigation)

CPHP

Construction activities under the CPHP would include, but not be limited to, demolition or renovation of certain existing campus site buildings; site clearing, excavation, and grading activities; new building foundation and vertical construction; new street, sidewalk and service corridor construction; installation of utilities; building interior finishing; and exterior hardscaping and landscaping improvements. As discussed in Chapter 3 *Project Description*, equipment involved with large-scale demolition, excavation, grading and construction at the campus site would include excavators, backhoes, dozers, loaders, cranes, and trucks for delivering materials and for off-hauling demolition debris. Additionally, a hoe-ram (a back-hoe fitted with a ramming bit) may be used to break up large concrete structures (e.g., for the demolition of the School of Nursing and UC Hall). No pile driving or blasting activities are proposed during construction of projects proposed under the CPHP. Rather, foundations would be installed using drilled piers; and excavation of soft rock would be conducted using hydraulic heavy excavators.

Table 4.11-5 shows typical noise levels produced by various types of construction equipment typically involved with large-scale construction projects that would occur at a reference distance of 50 feet from the source. Noise levels at and near demolition and construction sites would fluctuate depending on the particular type, number and duration of uses of various pieces of construction equipment at any given time. As shown in Table 4.11-5, the estimated noise levels generated by typical equipment that would be used at the campus site under the CPHP would meet the City of San Francisco Police Code 2909 standard of 80 dbA at 100 feet, with the exception of those equipment that would be exempt.

Under the CPHP, renovations of certain existing buildings would also occur, such as the HSIR Towers and the Medical Sciences Building. These renovations are assumed to be predominantly within the interior of existing buildings, and would not involve substantial operation of off-road construction equipment, other than use of a small crane. Since these activities would be largely conducted within the interior of building they would not result in significant construction noise impacts at nearby receptors. This would also be true for interior construction in new buildings that would be developed under the CPHP.

TABLE 4.11-5
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, Lmax at 50 Feet)	Noise Level (dBA, Leq at 100 Feet)	Exceed 80 dBA at 100 feet standard?
Dump truck	77	71	No
Portable air compressor	78	72	No
Concrete mixer (truck)	79	73	No
Crane	81	75	No
Excavator	81	75	No
Dozer	82	76	No
Paver	77	71	No
Generator	81	75	No
Backhoe	78	72	No
Auger Drill Rig	84	78	No
Hoe-ram	90	84	Exempt (impact) per City Noise Ordinance

SOURCE: FHWA, 2006.

As discussed in Chapter 3, *Project Description*, the CPHP would provide for development of approximately 2.90 million gross square feet (gsf) of new building space, or approximately 2.04 million gsf of net new building space. The CPHP Initial Phase projects, including the Irving Street Arrival, RAB, New Hospital and initial Aldea Housing Densification projects and the Initial Phase improvements, would be completed by 2030. Over an approximately 10-year period, there would be about 1.43 million gsf of new construction, nearly 287,000 gsf of demolition, and approximately 254,000 cubic yards of excavation on the campus site. Analysis provided below for the Initial Phase projects and the Initial Phase improvements indicates that noise levels from proposed peak demolition and construction activities at the closest receptors could exceed existing noise levels by as much as 27 dBA at receptors approximately 70 feet away. Noise levels exceeding the 10 dBA over existing levels threshold of the 2014 LRDP FEIR (a perceived doubling of loudness) would be a temporary significant impact. Receptors near these construction sites could also experience noise levels approaching or exceeding a speech-interference threshold of 70 dBA and result in a temporary but significant noise impact from construction and demolition activities.

All proposed CPHP Future Phase development is assumed to be completed between approximately 2030 and the horizon year of the Plan, about year 2050. Over this approximately 20-year period, there would be an additional 1.47 million gsf of new construction, approximately 401,000 gsf of demolition, and approximately 139,000 cubic yards of excavation on the campus site. The general types of construction equipment and techniques that would be used for Future Phase projects would be similar to those for the Initial Phase. As a result, while on balance, the overall amount of construction in the Future Phase would be roughly comparable to that which would occur in the Initial Phase, the Future Phase construction would be generally spread out over a longer duration (20-year period) that the Initial Phase construction (10-year period).

The specific sequencing of the individual CPHP Future Phase projects is not known at this time. However, when considering the amount and type of Future Phase demolition and construction, and the location of Future Phase development sites with respect to nearby receptors, it is expected that overall and peak construction noise impacts that would be experienced during the Future Phase would be generally comparable to those discussed for the Initial Phase projects, and would similarly result in a temporary but significant impact. Implementation of **CPHP Mitigation Measures NOI- 1a** through **1c** would reduce noise levels associated with demolition and construction activities under the proposed CPHP. Furthermore, as discussed in **CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures**, a traffic control plan would be implemented to reduce temporary construction related conflicts. The traffic control plan shall specify that truck routes for haul trucks and vendor trucks shall be designated and signed to be circular loops to the degree feasible. This would reduce the need for back-up alarms in proximity to noise-sensitive receptors.

CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures

UCSF contractors shall employ site-specific noise attenuation measures during construction of projects under the CPHP to reduce the generation of construction noise. These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by UCSF to ensure that construction noise is consistent with the standards set forth in the City's Noise Ordinance. Measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies:

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds.
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used where feasible.
- Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.
- Shield staging areas where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities. Shielding may consist of plywood fencing with no gaps or acoustical paneling erected in K-rails.

CPHP Mitigation Measure NOI-1b: Construction Hours

Construction hours shall be restricted to the hours listed in the table below. In rare circumstances, work may need to occur outside of these work hour limits. In such cases, UCSF Community and Government Relations will receive advance notice from the project manager, at least one week in advance as feasible, and will engage the community to identify measures to minimize potential impacts. These measures may include, but not be limited to, restricting work to smaller time windows, condensing the overall duration of nighttime work to the degree feasible, and erecting temporary barriers to shield the short-term nighttime activity.

Construction Hours

	"Not Noisy" Work[1]		Noisy Work	
	Regular hours	**Extended hours**[2]	**Regular hours**	**Extended hours**[1]
Monday - Friday	7:00 a.m. to 5:00 p.m.	5:00 p.m. to 8:00 p.m.	8:00 a.m. to 5:00 p.m.	
Saturday		8:00 a.m. to 5:00 p.m.		9:00 a.m. to 4:00 p.m.
Sunday		8:00 a.m. to 5:00 p.m.		

[1] "Not Noisy" work = 80 decibels or less at 100 feet; "Noisy" work = more than 80 decibels at 100 feet.

[2] Extended hours to be considered by UCSF Community and Government Relations with advance notice from the project manager.

CPHP Mitigation Measure NOI-1c: Pile-Installation Noise-Reducing Techniques

Noise-reducing pile-installation techniques shall be employed during project construction. These techniques shall include:

- Installing cast-in-place concrete piles. Noise from auger drilling is 17 dBA less than an impact pile driver.
- Vibrating piles into place, and installing shrouds around the pile-driving hammer where feasible.
- Implement "quiet" pile-installation technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile installation duration).

Mitigation: Implement CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures– Construction Traffic Control Plan.

Significance After Mitigation: CPHP Mitigation Measures NOI-1a, NOI-1b and NOI-1c would reduce the severity of noise generated by demolition and construction activities and reduce the potential annoyance to nearby residents and others who could be disturbed by these activities to the extent feasible. Implementation of CPHP Mitigation Measure NOI- 1a and 1b is projected to reduce noise levels associated with demolition and construction activities for CPHP construction by 5 to 10 dBA, while CPHP Mitigation Measure NOI-1c would reduce noise levels associated with pile installation activities by 17 dBA. However, because it would still be likely that during peak construction activities, noise levels in excess of 10 dBA over ambient may still occur at some sensitive receptors on or near the Parnassus Heights campus site after mitigation, the CPHP's construction noise impact would be significant and unavoidable with mitigation.

Irving Street Arrival, Research and Academic Building and Initial Aldea Housing Densification and Initial Phase Improvements

Construction Noise

As discussed in Chapter 3, *Project Description*, this EIR addresses three Initial Phase projects (Irving Street Arrival, RAB, and initial Aldea Housing Densification) at a project-level. While proposed New Hospital is also an Initial Phase and considered programmatically in this EIR, given the anticipated concurrent construction of New Hospital with other Initial Phase projects, the combined construction noise effects of all four projects are considered in this noise analysis.

As described in Chapter 3, *Project Description*, Initial Phase improvements are also proposed that would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. These Initial Phase improvements would generate incremental construction-related noise depending on the timing of implementation, but are not expected to substantially generate noise levels beyond those conservatively estimated below for the Initial Phase projects. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary, such as streetscape, utility or community investments, may involve the cooperation of the City of San Francisco and, as public works projects, would be subject to the City of San Francisco's Noise Ordinance.

As indicated above, construction under the CPHP would occur consistent with Section 2908 of the City Police Code (San Francisco Noise Ordinance). Although UCSF is not subject to the noise ordinance, it strives to be consistent with it to the extent feasible.[5]

Based on the construction schedule presented in Chapter 3, *Project Description*, the construction of the proposed Irving Street Arrival and Research and Academic Building (RAB) projects would overlap by approximately 2 years (between early 2022 and the end of 2023). Additionally, construction of the proposed New Hospital would also overlap in part with the finishing work for the proposed Irving Street Arrival (6 months; mid-2023 to end of 2023), RAB (1½ years; mid-2023 to end of 2025) and the initial Aldea Housing Densification (3 years; from 2028 to end of 2030). Given the substantial distance of the initial Aldea Housing Densification project from the other Initial Phase projects (greater than 1,500 feet and shielded topographically by Mount Sutro), the initial Aldea Housing Densification project would not contribute to cumulative concurrent noise effects from the other Initial Phase projects at receptor locations. However, there would potentially be occasions when construction activities of the New Hospital and the RAB could occur simultaneously, together affecting receptors on Parnassus Avenue. This could also be true of the construction of the Irving Street Arrival with the New Hospital, although the overlapping period would be at the end of the Irving Street Arrival work which would likely be mostly interior work by that time.

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[5] Section 2908 prohibits erecting, constructing, demolishing, excavating for, altering, or repairing any building or structures between the hours of 8:00 p.m. of any day and 7:00 a.m. of the following day if the noise level created is in excess of the ambient noise level by 5 dBA at the nearest property line.

The FHWA RCNM was used to estimate noise generated by construction activities. Construction noise levels were calculated for each stage of construction based on the equipment list provided by UCSF.

Table 4.11-6 presents the results of the RCNM modelling effort showing the predicted noise levels at the nearest sensitive land use. The nearest sensitive receptor to the Irving Street Arrival are residential uses on the north side of Irving Street, approximately 70 feet from the northern façade. Predicted noise values in Table 4.11-6 represent a worst case analysis when equipment is in operation at the point of the construction site closest to the nearest receptor, as this would occur only occur a short percentage of the overall construction period. As can be seen in Table 4.11-6, noise levels generated from the Irving Street Arrival project at the closest receptor would be below the FTA daytime criteria of 90 dBA for residential uses.

As shown in Table 4.11-6, noise levels from proposed demolition and construction activities at the closest receptors could exceed existing noise levels by as much as 27 dBA at demolition of the existing Aldea housing and up to 16 dBA from demolition activities associated with the RAB and mitigation measures are warranted.

Similarly, for demolition and construction of the RAB and initial Aldea Housing Densification, construction noise levels at the closest receptor would be below the FTA daytime criteria of 90 dBA at the nearest residential uses (nearest receptors along the 600 block of Parnassus Avenue for the RAB project; and at the Aldea Housing complex, the nearest receptor would be existing Aldea residences at 90 Behr Avenue which would remain occupied during construction of the initial Aldea Housing Densification project). However, the increase over existing noise levels at the nearest receptors for these two Initial Phase projects, as presented in Table 4.11-6 would be 16 dBA and 27 dBA, respectively. Impacts at other more distant receptors such as the existing Lucia Child Care center would less than those indicated in Table 4.11-6. Predicted noise values in the table represent a worst case analysis when equipment is in operation at the point of the project area closest to the receptor, which would only occur a short percentage of the overall construction period. However, such an increase would be a temporary significant impact that warrants implementation of mitigation measures.

Implementation of **CPHP Mitigation Measures NOI-1a** and **1b** would reduce noise levels associated with demolition and construction activities for Initial phase demolition and construction. However, because it would still be likely that during peak construction activities, noise levels in excess of 10 dBA over ambient may still occur at some sensitive receptors on or near the Parnassus Heights campus site after mitigation, the Initial Phase construction noise impact would be significant and unavoidable with mitigation.

Haul Truck Noise and Staging Areas

Excavation and demolition debris volumes associated with the Irving Street Arrival project would be modest, resulting in approximately three haul truck trips per peak hour. This temporary increase in haul truck trips would not substantially increase noise level along Irving Street where, as discussed in the *Environmental Setting*, existing noise levels were monitored to be 69 dBA due to frequent Muni light rail operations on this street.

TABLE 4.11-6
DAYTIME NOISE LEVELS FROM DEMOLITION AND CONSTRUCTION FOR PROPOSED IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA HOUSING DENSIFICATION PROJECTS

Representative Receptor	Existing Daytime Noise Level (dBA, Leq)[a]	Loudest Two Noise Sources	Reference Noise Level (dBA)[a]	Distance to Receptor[b] (feet)	Usage Factor	Adjusted L_{eq} Level (dBA)[c]	Exceed 90 dBA daytime standard?	Existing + Construction Noise Resultant Noise Level (dBA)[d]
Initial Phase Project: Irving Street Arrival Demolition								
30 Irving Street		Backhoe	78	70	40%	71	No	NA
30 Irving Street		Excavator	81	70	40%	74	No	NA
30 Irving Street	69	Combined Total	NA	70	NA	76	No	77
Initial Phase Project: Irving Street Arrival Building Construction								
30 Irving Street		Crane	83	70	16%	70	No	NA
30 Irving Street		Gradall Forklift	81	70	40%	77	No	NA
30 Irving Street	69	Combined Total	NA	70	NA	77	No	77
Initial Phase Project: RAB Demolition								
650 Parnassus Avenue		Backhoe	78	75	40%	70	No	NA
650 Parnassus Avenue		Hoe Ram	90	75	20%	80	No	NA
650 Parnassus Avenue	64	Combined Total	NA	75	NA	80	No	80
Initial Phase Project: RAB Building Construction								
650 Parnassus Avenue		Crane	83	75	16%	69	No	NA
650 Parnassus Avenue		Gradall Forklift	81	75	40%	76	No	NA
650 Parnassus Avenue	64	Combined Total	NA	75	NA	77	No	77

TABLE 4.11-6 (CONTINUED)
DAYTIME NOISE LEVELS FROM DEMOLITION AND CONSTRUCTION FOR PROPOSED IRVING STREET ARRIVAL, RAB, AND INITIAL ALDEA HOUSING DENSIFICATION PROJECTS

Representative Receptor	Existing Daytime Noise Level (dBA, Leq)[a]	Loudest Two Noise Sources	Reference Noise Level (dBA)[a]	Distance to Receptor[b] (feet)	Usage Factor	Adjusted L_{eq} Level (dBA)[c]	Exceed 90 dBA daytime standard?	Existing + Construction Noise Resultant Noise Level (dBA)[d]
Initial Phase Project: Initial Aldea Housing Densification Demolition								
90 Behr Avenue		Backhoe	78	70	40%	71	No	NA
90 Behr Avenue		Excavator	81	70	40%	74	No	NA
90 Behr Avenue	49	Combined Total	NA	70	NA	76	No	76
Initial Phase Project: Initial Aldea Housing Densification Building Construction								
90 Behr Avenue		Excavator	81	70	40%	74	No	NA
90 Behr Avenue		Crane	81	70	40%	70	No	NA
90 Behr Avenue	49	Combined Total	NA	70	NA	75	No	75

NOTES:
[a] L_{max} at 50-feet
[b] Distance between approximate location of equipment and property line of receptor.
[c] The L_{eq} level is adjusted for distance and percentage of usage.
[d] Logarithmic sum of existing noise level and construction equipment contribution is the resultant noise level.

Haul trucks to remove demolition debris and excavated materials at the site of the RAB project would use Parnassus Avenue. Grading and site preparation activity at the RAB site would generate approximately three peak haul trucks per hour over several months. These trips would contribute 52 dBA to hourly average noise levels, where, as discussed in the *Environmental Setting*, existing daytime noise levels were monitored to be 58 dBA on Parnassus Avenue. These haul truck trips would result in a temporary 1 dBA increase to the existing hourly average noise levels along Parnassus Avenue, which would be a less than significant roadway noise increase for receptors along this street.

Haul trucks to remove demolition and grading materials from the Aldea Housing complex would temporarily increase noise levels along Clarendon Avenue, which would be used as a haul route for this Initial Phase project. Grading and site preparation activity at Aldea Housing complex would generate approximately nine peak haul trucks per hour over a two-week period. While each truck pass-by event would be noticeable to existing sensitive receptors along the truck haul route, these trips would contribute 58 dBA to hourly average noise levels, where existing daytime noise levels were monitored to be 60 dBA. Addition of this contribution of truck noise to existing levels would be less than a 3 dBA increase to existing levels and would be less than significant. As explained under the CPHP analysis, CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures would implement a Construction Traffic Control Plan that would serve to reduce truck noise from back-up alarms, including for the Initial Phase projects.

Given the relatively short duration of demolition and grading activity for the Irving Street Arrival, RAB and initial Aldea Housing Densification, and the modest contribution to existing roadway noise, and with implementation of CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures, noise from haul and construction truck operations would be less than significant.

As described in Chapter 3, Project Description, potential on-site CPHP construction materials/construction worker staging areas would include: 1) the existing parking lot area located south of UC Hall; 2) the Surge parking lot, and/or 3) the top level of the Medical Building 1 parking lot. Staging areas would primarily generate noise at the beginning and end of work shifts, when equipment is activated or shut down for a given workday, and by trucks delivering and removing materials. Operation of loaders and forklifts may also occur in staging areas. The existing parking lot area located south of UC Hall is located over 250 feet from the nearest receptors across Parnassus Avenue and the lot is substantially shielded by existing structures. Given this shielding, and that demolition of UC Hall and construction of the RAB would be occurring adjacently, operations at this potential staging area are not expected to generate a substantial noise contribution.

The potential staging at the Surge parking lot would be located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue) and potential staging at the Medical Building 1 parking lot would be within 100 feet from the nearest off-site receptors (e.g., on Irving Street, Arguello Boulevard, Cole Street and Hillway Avenue). Staging operations at the Medical Building 1 parking lot are not expected to generate a substantial noise contribution given that demolition and construction of the new Irving Street Arrival would be occurring adjacently. However, the Surge parking lot would likely be used for staging for the Aldea Housing Densification project and the New Hospital. Equipment operations and delivery trucks at this staging area and along Medical Center Way would be a new source of noise to the residences on Edgewood Avenue, which would be a potentially significant impact. **CPHP Mitigation Measure NOI- 1a: Construction Noise Control Measures** would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities. Depending on the materials used, such shielding can provide anywhere from 5 to 15 dBA of noise reduction.

Irving Street Arrival

Mitigation: Implement Mitigation Measure NOI-1b.

Significance after Mitigation: Less than Significant with Mitigation. Construction equipment would be consistent with San Francisco Police Code 2909 standard, would be below the 90 dBA criteria of the FTA and, as demonstrated in Table 4.11-6, would result in an increase in noise level of less than 10 dBA over existing levels. Implementation of CPHP Mitigation Measure NOI-1b would ensure that nighttime noise impacts from construction activities would be avoided.

Research and Academic Building

Mitigation: Implement CPHP Mitigation Measures NOI-1a, NOI-1b, NOI-1c and CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures.

Significance after Mitigation: Significant and Unavoidable. Implementation of CPHP Mitigation Measure NOI-1a-c would reduce the severity of noise generated by demolition and construction activities and reduce the potential annoyance to nearby sensitive receptors to the extent feasible. Implementation of CPHP Mitigation Measures NOI-1a through -1b would reduce noise levels associated with demolition and construction activities by 5 to 10 dBA, and implementation of CPHP Mitigation Measure NOI-1c would reduce noise levels by 17 dBA. However, because it would still be likely that during peak demolition activities, noise levels in excess of 10 dBA over ambient may still occur at some sensitive receptors on or near the Parnassus Heights campus site after mitigation, the RAB construction noise impact would be significant and unavoidable with mitigation.

Initial Aldea Housing Densification Project

Mitigation: Implement CPHP Mitigation Measures NOI-1a, NOI-1b, NOI-1c and CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures.

Significance after Mitigation: Significant and Unavoidable. Implementation of CPHP Mitigation Measure NOI-1a-c would reduce the severity of noise generated by demolition and construction activities and reduce the potential annoyance to nearby sensitive receptors to the extent feasible. Implementation of CPHP Mitigation Measure NOI-1a through -1b would reduce noise levels associated with demolition and construction activities by 5 to 10 dBA, and implementation of CPHP Mitigation Measure NOI-1c would reduce noise levels by 17 dBA. Shielding of staging areas adjacent to receptors can provide 5 to 15 dBA of noise reduction. However, because it would still be likely that during peak demolition and construction activities, noise levels in excess of 10 dBA over ambient may still occur at sensitive receptors on or near the Aldea housing complex after mitigation, the construction noise impact associated with the Initial Aldea Housing Densification project would be significant and unavoidable with mitigation.

Initial Phase Improvements

Mitigation: Implement Mitigation Measure NOI-1b.

Significance after Mitigation: Less than Significant with Mitigation. Construction equipment would be consistent with San Francisco Police Code 2909 standard and would be below the 90 dBA criteria of the FTA. Implementation of CPHP Mitigation Measure NOI-1b would ensure that nighttime noise impacts from construction activities would be avoided.

Potential Health Effects of Significant CPHP Construction Noise Impacts

As discussed above, daytime construction noise levels from simultaneous operation of multiple pieces of equipment could result in occasional noise levels of up to 76 dBA, L_{eq} at the nearby receptors over several months of activity. Because construction would be restricted by CPHP Mitigation Measure NOI-1b to only occur during daytime hours, health effects associated with the potential for nighttime awakenings would be avoided.

Short-term noise levels constituting the threshold of pain and hearing damage are 120 dB and 140 dB, respectively (Kinsler, 1982). Table 4.11-5 shows average daytime construction noise levels at each of the studied receptors. The Occupational Safety and Health Administration require hearing conservation plans when noise levels continuously exceed 85 dBA over an 8-hour period, which is also above the predicted noise levels at the nearest receptors. Construction equipment would comply with the City’s Noise Ordinance restriction (noise level of 80 dBA or less at a distance of 100 feet), and the resultant predicted noise levels at the nearest receptors would be below this level. Therefore, project construction noise would not result in adverse health effects related to pain, the onset of hearing loss or other significant health effects.

Impact NOI-2: Implementation of the CPHP would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Less than Significant with Mitigation)

CPHP

Stationary Noise Sources

Operation of Parnassus Heights campus site development under the CPHP would increase ambient noise levels in the immediate campus site vicinity primarily through the operation of new building stationary equipment, such as HVAC systems, and emergency generators that would be required by building code for high rise buildings in excess of 75 feet in height. The specific locations of such noise-generating equipment is not known for CPHP Future Phase projects given that the proposed new buildings have not yet been designed. Preliminary stacking diagrams for the New Hospital indicate that its mechanical rooms could be within two sub-grade basement levels, as well as on the 7th and 11th floors. Because equipment could be located within the building interior, noise emanation could be limited to the locations of exhaust and intake portals. Fixed mechanical equipment would be installed and operated to conform to the extent feasible with the requirements of the City of San Francisco noise ordinance. Additionally, new mechanical equipment installed at the campus site under the CPHP would effectively replace older and potentially noisier HVAC equipment currently existing at buildings that would be demolished and/or renovated.

Regular maintenance operation of emergency standby diesel generators would occur for approximately four hours per month (50 hours annually) for testing and such a short noise event would not substantially alter ambient noise levels. It should also be noted that operation of proposed generators during a power failure or other emergency would be exempt from the restrictions of the City's noise ordinance.

Without specific detail on the location and noise generating specifications and orientation of building stationary sources that would be developed under the CPHP, a potential significant impact may occur resulting in generation of noise levels exceeding the thresholds of the City of San Francisco noise ordinance, with which UCSF strives to be compliant. Therefore, impacts from increased permanent noise levels from stationary sources are conservatively identified as potentially significant and **CPHP Mitigation Measure NOI-2** is identified to reduce this impact to less than significant with mitigation.

Traffic Noise Increases on Medical Center Way, including from Trucks

As discussed in Chapter 3, *Project Description*, the CPHP proposes a service corridor that would extend from Medical Center Way to Koret Way and hence, to a proposed extension of Fourth Avenue on the west side of the campus site. The proposed service corridor would facilitate transport of goods and materials by freight vehicles for back-of-house functions that would otherwise take a longer route**.**

Notwithstanding the partial shielding provided by existing and proposed buildings at the campus site, and improvement in truck circulation provided by the proposed service corridor, there would be the potential for residences along Edgewood Avenue to be exposed to increased noise generation from increases in vehicle travel, including trucks, along the Medical Center Way.

Noise levels from traffic on Medical Center Way were calculated for the existing and with CPHP conditions. Noise levels were calculated using the DNL calculator developed by the federal Department of Housing and Urban Development. This model takes into account the increases in vehicle trips, including truck, and effect of roadway grade on the noise emissions from heavy trucks. Based on the estimated increase in traffic volumes on Medical Center Way as estimated by the transportation consultant, noise levels would increase from 58 DNL to 59 DNL at the nearest residential structures on Edgewood Avenue, approximately 180 feet away from the roadway. These predicted noise levels do not take into account any shielding that would be provided by local topography or on-campus buildings, and are therefore conservative. With the CPHP, traffic noise level increases along Medical Center Way would increase by 1 dBA, which would not be perceptible to the human ear. The increase would also be substantially less than the 8 dBA over existing ambient noise levels standard established by Section 2909 of the City's Police Code, and consequently, the noise increase from the increase in vehicle travel on Medical Center Way would be less than significant.

Ambulance Related Noise

Emergency vehicles currently access the Moffitt Hospital emergency room at the driveway at 505 Parnassus Avenue. Emergency vehicle sirens (associated with ambulances) are characteristic in the general vicinity of hospitals and can produce short-term noise up to 106 dB (CPMC, 2010), but normal practice is for ambulance drivers to turn off their sirens within a few blocks of the hospital emergency access. The proposed New Hospital would also contain emergency room facilities and accommodate emergency ambulance vehicles. The specific ambulance drop-off location and parking lot configuration is not yet known, however, it could be located along Medical Center Way. Similar to existing ambulance drop-off at Moffitt Hospital, it is expected that ambulances dropping off patients at the New Hospital would turn off the sirens within the vicinity of the hospital which would minimize noise effects on surrounding land uses.

With the exception of siren use, patient drop-off events associated with ambulances are assumed to generate noise levels similar to those that would occur from typical parking lot activities. Like typical parking lot activities, patient drop-off events are expected to generate noise from vehicle arrival, idling, occupants exiting the vehicle, door closures, conversations among passengers, occupants entering the vehicle, startup, and departure of the vehicle. Given that existing campus operations already involve ambulance drop-offs, and that the New Hospital would be assumed to only marginally increase the potential frequency of emergency vehicle visits, the operational impact of additional ambulance activities at the campus site associated with the New Hospital would be less than significant.

CPHP Mitigation Measure NOI-2: Operational Noise Control

For all development projects under the CPHP, mechanical equipment shall be selected and designed to meet the City's Police Code requirements of 8 dBA over existing ambient noise levels without the equipment operating as well as an interior noise standard at any sleeping or living room in any dwelling unit located on residential property of 45 dBA between 10:00 p.m. and 7:00 a.m., and 50 dBA between 7:00 a.m. and 10:00 p.m.

A qualified acoustical consultant shall be retained to review mechanical noise as these systems are selected to determine specific noise reduction measures necessary to reduce noise to comply with the City's Police Code. Noise reduction measures could include, but are not limited to, selection of equipment that emits low noise levels; installation of noise barriers such as enclosures and parapet walls to block the line of sight between the noise source and the nearest receptors; and siting the mechanical equipment, including intake and exhaust portals for fixed mechanical equipment, as far as possible from the nearby existing sensitive receptors (i.e., west side of building).

Irving Street Arrival, Research and Academic Building and Initial Aldea Housing Densification, and Initial Phase Improvements

The proposed Irving Street Arrival project includes modification of the portion of the existing Medical Building 1 that functions as a pedestrian entrance extending from Irving Street to Parnassus Avenue. There would be no stationary noise sources associated with the Irving Street Arrival project, and consequently, there would be no impact associated with permanent noise increases from stationary sources for this project.

The proposed RAB is conceptually designed and would be up to approximately 130 feet in height and would primarily contain research and education space. It would likely have both HVAC and fume hood air handling equipment, and a back-up diesel generator. Generator exhaust port would be located on the southeast corner of the RAB, approximately 260 feet from the nearest off-site receptors, across Parnassus Avenue. As indicated above, maintenance operation of building emergency standby diesel generators, including for the proposed RAB, would occur for approximately four hours per month for testing and such a short noise event would not substantially alter ambient noise levels. HVAC equipment would likely be mounted on the RAB rooftop and would be shielded from nearby receptors, across Parnassus Avenue with a barrier that extends 10 feet above the roofline. However, as discussed above, similar to other projects under the CPHP, without specific detail on the location and noise generating specifications and orientation of stationary sources, a potential significant impact may occur resulting in generation of noise levels exceeding the thresholds of the City of San Francisco noise Police Code, which UCSF strives to be compliant with. Therefore, impacts from increased permanent noise levels from stationary sources associated with the RAB are conservatively identified as potentially significant, and **CPHP Mitigation Measure NOI-2** is identified to reduce this impact to less than significant with mitigation for the RAB project.

For the initial Aldea Housing Densification, three existing 3-story 1960s-era housing structures would be replaced with three 8-story housing structures and one 5-story housing structure, each of which would include HVAC equipment. HVAC equipment for the new Aldea housing would likely be mounted on the rooftop, and would be shielded from surrounding receptors by a parapet and/or rooftop mechanical penthouses. Similar to other projects under the CPHP, in the absence of specific detail on the location and noise generating specifications and orientation of stationary sources, a potential significant impact may occur resulting in generation of noise levels exceeding the thresholds of the City of San Francisco noise ordinance, which UCSF strives to be compliant with. Therefore, impacts from increased permanent noise levels from stationary sources are conservatively identified as potentially significant and **CPHP Mitigation Measure NOI-2** is identified to reduce this impact to less than significant with mitigation for the initial Aldea Housing Densification project.

As described in Chapter 3, *Project Description*, Initial Phase improvements are also proposed that would also include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. Once constructed, none of these Initial Phase improvements are expected to result in any notable permanent increases in operational noise.

Irving Street Arrival

Mitigation: None required.

Research and Academic Building

Mitigation: Implement CPHP Mitigation Measure NOI-2.

Significance after Mitigation: Less than Significant. Implementation of CPHP Mitigation Measure NOI-2 would ensure that stationary source equipment would operate within the restrictions of the City of San Francisco Police Code by establishing performance standards consistent with these Code requirements. Therefore, the operational noise impact of the RAB project would be less than significant.

Initial Aldea Housing Densification

Mitigation: Implement CPHP Mitigation Measure NOI-2.

Significance after Mitigation: Less than Significant. Implementation of CPHP Mitigation Measure NOI-2 would ensure that stationary source equipment would operate within the restrictions of the City of San Francisco Police Code by establishing performance standards consistent with these Code requirements. Therefore, the operational noise impact of the initial Aldea Housing Densification project would be less than significant.

Initial Phase Improvements

Mitigation: None required.

Impact NOI-3: Construction activities under the CPHP could result in generation of excessive groundborne vibration or groundborne noise levels. (Less than Significant with Mitigation)

CPHP

The types of construction and demolition-related activities associated with propagation of ground-borne vibration would primarily include the use of hoe-rams for demolishing large concrete structures and foundations, the use of vibratory rollers for compacting, and drilling for pile installation. As discussed above, no pile driving or blasting activities are proposed during construction of development under the CPHP. Rather, foundations would be installed using drilled piers; and excavation of soft rock would be conducted using hydraulic heavy excavators.

The Caltrans thresholds for potential architectural damage due to groundborne vibrations is 0.5 in/sec PPV for new residential structures and modern commercial buildings and 0.25 in/sec PPV for historic and older buildings.

The generalized development scheme of CPHP Future Phase projects does not lend itself to a direct assessment of specific activity and locations (e.g., piles insertion at specific insertion locations) for determining specific construction-generated vibration at sensitive land uses. However, a matrix of vibration from construction activities with distance is presented in **Table 4.11-7**. Shaded areas indicate distances where vibration levels would approach the criterion for historic and older structures. As can be seen from Table 4.11-7, use of a vibratory roller closer than 25 feet from a historic building could result in cosmetic damage. This would be a potential significant impact warranting the identification of mitigation measures.

TABLE 4.11-7
VIBRATION LEVELS FOR CONSTRUCTION ACTIVITY

Equipment	Estimated PPV (inches per second)				
	At 25 Feet (reference)	At 50 Feet	At 75 Feet	At 100 Feet	At 170 Feet
Jack Hammer	0.035	0.016	0.010	0.008	0.004
Loaded Trucks	0.076	0.035	0.023	0.017	0.009
Caisson Drilling	0.089	0.041	0.027	0.019	0.011
Large Bulldozer	0.089	0.041	0.027	0.019	0.011
Vibratory Roller	0.20	0.100	0.063	0.046	0.025

SOURCE: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, 2018 and Caltrans, 2013b

The potential for human annoyance and sleep disturbance vibration effects are primarily a concern when substantial construction activities are proposed during the nighttime hours, which would not occur with implementation of CPHP Mitigation Measure NOI-1b: Construction Hours, above. Therefore, with mitigation, human annoyance impacts from vibration would be less than significant.

UCSF also operates vibration sensitive equipment in some of its existing buildings, such as MRI machines and electron microscopes. Demolition and construction activities in close proximity to such equipment could generate vibration levels of 65 VdB or greater that could affect these operations, depending on the degree of vibration isolation designed into their systems. Therefore, there is a potential for a significant impact to vibration-sensitive equipment and mitigation measure is identified to reduce such impacts to a less than significant level.

CPHP Mitigation Measure NOI-3a: Limited Use of Vibratory Rollers

UCSF shall require that contractors use (non- vibratory) excavator mounted compaction wheels mounted on an excavator or back-hoe and/or small, smooth drum rollers for final compaction of any asphalt base and asphalt concrete within 25 feet of a historic or older structure. If needed to meet compaction requirements, smaller, non-seated vibratory rollers shall be used to minimize vibration levels during repaving activities where needed to meet a vibration standard of 0.25 PPV at adjacent historic or older structures.

CPHP Mitigation Measure NOI-3b: Assessment and Relocation/Retrofitting of Vibration-Sensitive Equipment

UCSF shall evaluate the presence of vibration-sensitive equipment within 150 feet of construction and demolition areas. Any sensitive equipment shall be evaluated for the existing extent of vibration isolation and relocated or further embellish isolation, as warranted.

> **Significance after Mitigation:** Less than Significant. CPHP Mitigation Measure NOI-3a would reduce vibration levels by replacing vibration intensive equipment when compaction is required adjacent to historic or older structures. CPHP Mitigation Measure NOI-3b would require identification and assessment of vibration-sensitive equipment so that it can be relocated or further isolated so as to eliminate the potential for significant vibration impacts. Consequently, potential vibration-related impacts for CPHP development projects would be less than significant.

Irving Street Arrival, RAB, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

The proposal for the Irving Street Arrival includes modification of the portion of the existing Medical Building 1 which would be modified or demolished in order to develop a new and/or reconfigured multi-story vertical circulation space. The Irving Street Arrival project would also include replacing the facades or reskinning of the Millberry Union and Medical Building 1 garage structures. The Milberry Union building is a historic structure, as identified in Section 4.4, *Cultural Resources and Tribal Cultural Resources*, however, the adjacent Millberry Union parking structure is not currently historic. All other adjacent structures are of modern construction and would not be exposed to vibration levels exceeding 0.5 PPV. Therefore, vibration impacts of the Irving Street Arrival project from construction activities would be less than significant.

Construction of the RAB project would necessitate demolition of UC Hall and School of Nursing building. The Clinical Sciences building, which is located adjacent to UC Hall and the School of Nursing building, is a historic structure as identified in Section 4.4. Use of a vibratory roller within 25 feet of this structure could result in building damage. Therefore, CPHP Mitigation Measure NOI-3a identified above should be implemented during construction of the RAB project. In addition, CPHP Mitigation Measure NOI-3b would ensure protection of any vibration-sensitive equipment within 150 feet of construction and demolition areas. With implementation of this mitigation, potential impacts of the RAB project from construction vibration would be less than significant.

The initial Aldea Housing Densification project would require demolition of historic structures at 165 and 175 Johnstone Avenue, and 105 Behr Avenue. The other remaining nearby Aldea housing structures have not been evaluated for historic significance, but are sufficiently distant (60 feet or more) from Initial Phase demolition and construction as to be beyond the potential for vibration impacts. Therefore, impacts of the Initial Aldea Housing Densification project from construction vibration would be less than significant.

Proposed Initial Phase improvements would also generate incremental construction-related vibration depending on the timing of implementation, but are not expected to substantially generate vibration levels beyond those conservatively estimated above for the Initial Phase projects.

The potential for human annoyance and sleep disturbance vibration effects are primarily a concern when substantial construction activities are proposed during the nighttime hours, which would not occur with implementation of CPHP Mitigation Measure NOI-1b: Construction Hours, above. Therefore, with mitigation, human annoyance impacts from vibration would be less than significant.

Irving Street Arrival

Mitigation: None required.

Research and Academic Building

Mitigation: Implement CPHP Mitigation Measure NOI-3a and NOI-3b. CPHP Mitigation Measure NOI-3a would reduce vibration levels by replacing vibration intensive equipment when compaction is required adjacent to the Clinical Sciences building. CPHP Mitigation Measure NOI-3b would ensure protection of any vibration-sensitive equipment within 150 feet of construction and demolition areas.

Significance after Mitigation: Less than Significant.

Initial Aldea Housing Densification

Mitigation: None required.

Initial Phase Improvements

Mitigation: None required.

Impact NOI-4: Implementation of the CPHP would not exceed an LRDP EIR operational standard of significance by contributing to an increase in average daily noise levels (L_{dn}) of 3 dB(A) or more at property lines, where ambient noise levels already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use. (Less than Significant)

Operation of development proposed under the CPHP would be considered to generate a significant impact if it resulted in a permanent increase in ambient noise levels greater than 3 dBA above levels existing without the project for areas already impacted by noise. Noise levels were determined for this analysis using the FHWA Traffic Noise Prediction Model and the turning movements provided in the CPHP traffic study for the Existing, Existing plus CPHP, and Cumulative plus CPHP conditions. Peak hour intersection turning data from the traffic study were analyzed to evaluate traffic increases and resulting traffic-generated noise increases on roadway segments most affected by CPHP-related traffic. The roadway segments analyzed and the modeled noise levels are presented in **Table 4.11-8**.

As shown in Table 4.11-8, the increase in peak hour traffic noise in the vicinity of the Parnassus Heights campus site from the Existing Plus CPHP traffic scenario compared to the Existing traffic scenario would be less than 3 dBA on all roadway segments. This is also true when the Cumulative plus CPHP condition is compared to existing conditions. Overall, traffic noise increases associated with the CPHP along all analyzed roadway segments in the vicinity of the Parnassus Heights campus site would be less than 3 dBA and the impact related to traffic noise would be less than significant.

Mitigation: None required.

TABLE 4.11-8
PEAK-HOUR TRAFFIC NOISE LEVELS IN THE VICINITY OF THE PARNASSUS HEIGHTS CAMPUS SITE (dBA)

Roadway Segment[a,b]	(A) Existing	(B) Existing Plus CPHP	(B-A) Difference between Existing Plus CPHP and Existing[c]	(D) Cumulative Plus CPHP (2050)	(D-A) Difference between Cumulative Plus CPHP and Existing
Kirkham Street between 5th Avenue and 7th Avenue	58.8	60.5	1.7	61.5	2.7
5th Avenue between Kirkham and Judah Streets	58.1	58.7	0.6	59.3	1.2
7th Avenue between Kirkham and Judah Streets	63.5	64.9	1.4	65.1	1.6
Judah Avenue between 5th Avenue and 7th Avenue	63.3	65.2	1.9	65.5	2.2
Parnassus Avenue between 3rd Avenue and 5th Avenue	64.6	66.3	1.7	66.6	2.0
Parnassus Avenue between 3rd Avenue and Hillway Avenue	64.4	66.6	2.2	66.8	2.4
Parnassus Avenue between Hillway Avenue and Stanyan Street	63.1	64.8	1.7	65.2	2.1
Stanyan Street between Parnassus Avenue and Frederick Street	63.5	64.9	1.4	65.0	1.5
Carl Street between Arguello Boulevard and Stanyan Street	60.1	61.1	1.0	61.7	1.6
Irving Street between Arguello Boulevard and 4th Avenue	60.9	62.7	1.8	63.3	2.4
Lincoln Way between Arguello Boulevard and 4th Avenue	73.3	73.7	0.4	73.9	0.6
Clarendon Avenue between Johnstone Drive and Laguna Honda Boulevard	64.7	65.1	0.4	65.3	0.6

NOTES:

[a] Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments. Noise levels were determined using algorithms of the FHWA Traffic Noise Prediction Model.

[b] The analysis considered the vehicle mix based on – cars 95 percent, medium trucks three percent, and heavy trucks two percent on Parnassus Avenue, Irving Avenue, and Lincoln Way based on observed city and para-transit bus activity. Traffic speeds for all vehicle classes were set at 25 mph for all vehicle classes, except for Lincoln Way and Clarendon Avenue which are 35 mph.

SOURCE: ESA, 2019.

Irving Street Arrival, RAB, and Initial Aldea Housing Densification Projects, and Initial Phase Improvements

Operational traffic generated individually by the Irving Street Arrival, RAB, and Initial Aldea Housing Densification projects, and Initial Phase improvements would be a subset of that traffic generated by the CPHP. As a result, traffic-associated noise for each of these projects would be a subset of the traffic-generated noise of the CPHP as analyzed above, and would similarly be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact C-NOI-1: Implementation of the CPHP, combined with cumulative construction noise in the project area, would generate a substantial temporary increase in ambient noise levels from construction activity in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Significant and Unavoidable with Mitigation)

The geographic scope of analysis for cumulative construction noise and vibration impacts encompasses sensitive receptors within approximately 600 feet of the construction project site.[6] Beyond 600 feet, the contributions of noise from other projects would be greatly attenuated through both distance and intervening structures and their contribution would be expected to be minimal. Section 4.0 *Introduction to Environmental Analysis*, presents the list of reasonably foreseeable future projects in the vicinity that could contribute to cumulative construction noise impacts.

There is one reasonably foreseeable off-site cumulative construction project in the campus site vicinity: the seismic retrofit of 350 Parnassus Avenue which would occur at approximately the same time as the Irving Street Arrival construction in 2022. Additionally, cumulative construction noise would be associated with the proposed Initial Phase projects and other UCSF projects within the campus site that were previously approved under the 2014 LRDP. Most notably, the demolition of the LPPI building, which would be necessary to accommodate development of the New Hospital, would occur in 2022. The only notable contemporaneous CPHP construction project during 2022 would be the proposed Irving Street Arrival which would undergo construction work during the same year. As discussed above in Impact NOI-1, individually, the demolition and construction of the Irving Street Arrival would result in a less than significant impact. Demolition activities of the LPPI and the Irving Street Arrival would occur within approximately 200 feet of each other on either side of Parnassus Avenue. Receptors potentially affected by both projects' demolition and construction activities would be the existing residences on Irving Street between Arguello Boulevard and 2nd Avenue, as well as patients of Long and Moffitt Hospitals. Irving Street receptors would be 450 feet away and shielded from demolition activities of the LPPI by the intervening Medical Building 1, an 8-story structure, which would provide sufficient attenuation to reduce the cumulative contribution of LPPI demolition noise to a less than significant level. However, Moffitt Hospital is adjacent to the LPPI and approximately 160 feet from the Irving Street Arrival where noise levels of 78 dBA would be expected at a distance of 100 feet from the LPPI demolition alone. As stated in the analysis of Impact NOI-1, construction noise associated with the Irving Street Arrival would be approximately 8 dBA over the existing noise levels at the nearest sensitive receptor which would be a less than significant construction noise impact for the construction year of 2022. However, the addition of demolition activities of the LPPI as well as the potential simultaneous seismic retrofit work at 350 Parnassus

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[6] This screening threshold distance was developed based on stationary source noise attenuation equations (Caltrans, 2013a) and the combined noise level generated by typical construction phases for a given project (assuming multiple pieces of equipment) at a distance of 50 feet. Using the attenuation equations, the maximum noise level of 89 A-weighted decibels (dBA) for both excavation and finishing would diminish to below 70 dBA (speech interference) at 600 feet.

A receptor experiencing noise levels of 89 dBA from two adjacent construction sites would experience a cumulative noise level of 91 dBA (the acoustical sum of 89 dBA plus 89 dBA), which would still be below 70 dBA at 600 feet which, hence, is used as the geographic scope for approaching a significant impact.

Avenue would likely result in times when the combination of demolition and construction noise would exceed 10 dBA over existing ambient levels even after implementation of identified Mitigation Measures. Therefore, implementation of **CPHP Mitigation Measure NOI-1a** and **1b** would be required to reduce noise levels associated with demolition and construction activities. Implementation of **CPHP Mitigation Measure TRANS-5** would further serve to reduce cumulative construction traffic noise.

> **Mitigation:** Implement CPHP Mitigation Measures NOI-1a, NOI-1b and CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures.
>
> **Significance after Mitigation:** Significant and Unavoidable with Mitigation. CPHP mitigation measures would reduce the severity of noise generated by demolition and construction activities and reduce the potential annoyance to nearby sensitive receptors to the extent feasible. Implementation of CPHP Mitigation Measures NOI-1a and 1b would reduce noise levels associated with demolition and construction activities by 5 to 10 dBA. However, because it would still be likely that during peak demolition activities, noise levels in excess of 10 dBA over ambient may still occur at some sensitive receptors on or near the Parnassus Heights campus site after mitigation, the cumulative construction noise impact would be significant and unavoidable with mitigation.

Impact C-NOI-2: Implementation of the CPHP, combined with cumulative development in the project area, would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Less than Significant with Mitigation)

As discussed above, there are no reasonably foreseeable off-site cumulative projects within the geographic scope of the CPHP projects, including CPHP Initial Phase projects, and consequently, cumulative operational noise would be limited to other UCSF projects within the campus site that were previously approved under the 2014 LRDP. However, these on-campus cumulative projects are generally demolition projects addressed above in Impact C-NOI-1 or renovation projects that would not result in new stationary noise sources. Consequently, cumulative stationary source operational impacts of the CPHP would be the same as those analyzed above in CPHP Impact NOI-2, and would be less than significant with implementation of **CPHP Mitigation Measure NOI-2**.

> **Mitigation:** Implement CPHP Mitigation Measure NOI-2.
>
> **Significance after Mitigation:** Less than Significant.

Impact C-NOI-3: Implementation of the CPHP, combined with cumulative construction in the project area, would result in generation of excessive groundborne vibration or groundborne noise levels. (Less than Significant with Mitigation)

As indicated above, cumulative construction vibration would be limited to other UCSF construction projects within the campus site that were previously approved under the 2014 LRDP. Demolition projects authorized under the 2014 LRDP with the potential to generate vibration include the LPPI, Koret Vision Center, Proctor Building, and the EHS and Annex buildings. As with demolition that would occur under the CPHP, none of the demolition of projects authorized under the 2014 LRDP would be conducted during nighttime hours and would, therefore, not result in human annoyance impacts from vibration or sleep disturbance.

Structural impacts to buildings adjacent to the proposed demolition sites, which may be a concern individually, are not a concern in the cumulative scenario because the LRDP demolition projects are of sufficient distant from one another to cumulatively combine to result in structural damage impacts not already considered above in CPHP Impact NOI-3 or in the 2014 LRDP FEIR.

Consequently, cumulative vibration impacts of the CPHP would be the similar to those analyzed above in CPHP Impact NOI-3, and would be less than significant with implementation of **CPHP Mitigation Measure NOI-3a**.

Mitigation: Implement CPHP Mitigation Measure NOI-3a.

Significance after Mitigation: Less than Significant.

Impact C-NOI-4: Implementation of the CPHP combined with cumulative development in the project area could exceed an LRDP EIR operational standard of significance by contributing to an increase in average daily noise levels (L_{dn}) of 3 dB(A) or more at property lines, if ambient noise levels in areas adjacent to proposed development already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use. (Less than Significant)

As shown in Table 4.11-8, the increase in peak hour traffic noise in the vicinity of the Parnassus Heights campus site from the Existing Plus Cumulative CPHP traffic scenario compared to the Existing traffic scenario would be less than 3 dBA on all roadway segments. Overall, traffic noise increases associated with the CPHP and cumulative development along all analyzed roadway segments in the vicinity of the Parnassus Heights campus site would be less than 3 dBA and the cumulative impact related to traffic noise would be less than significant.

Mitigation: None required.

4.11.4 References

Alameda County Community Development Agency (ACCDA), 2010. *Oakland International Airport, Airport Land Use Compatibility Plan*, December, 2010.

California Department of Transportation (Caltrans), 2009. *Technical Noise Supplement*, November 2009. Available at: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete2009RedlineScreenProcess.pdf. November. Accessed December, 2019.

Caltrans. 2013. Transportation and Construction Vibration Guidance Manual. September.

Caltrans, 2013a. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

California Pacific Medical Center (CPMC), 2010. *Draft Environmental Impact Report for the CPMC Long Range Development Plan*, Vol.3 p. 4.6-70. July 2010.

City and County of San Francisco (CCSF), 1996 The of the *San Francisco General Plan* Environmental Protection Element Land Use Compatibility Guidelines for Community Noise.

Federal Highway Administration (FHWA), 2006. *Roadway Construction Noise Model User Guide*, 2006.

Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment.

Illingworth & Rodkin, 2018, Community Noise Survey for *UCSF Mount Sutro Open Space Reserve Vegetation Management Plan, Final EIR*, March 2018.

Kinsler, Lawrence E., Frey, A.R., Coppens, A.B., and Sanders, J.V., 1982. *Fundamentals of Acoustics*, Third Edition.

U.S. Environmental Protection Agency (U.S. EPA), 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF. Accessed December, 2019.

World Health Organization, 1999. Guidelines for Community Noise, Geneva. Available at: http://www.euro.who.int/en/health-topics/environment-and-health/noise/environmental-noise-guidelines-for-the-european-region. Accessed December, 2019.

San Francisco International Airport (SFO), 2015. *2019 Noise Exposure Map*, August 13, 2015, https://media.flysfo.com/media/sfo/noise-abatement/sfo_p150_2019-nem-36x24-plot-signed_ada.pdf, accessed December, 2019.

United States Department of Housing and Urban Development (HUD), 1985. *The Noise Guidebook.*

4.12 Population and Housing

This section assesses the potential for construction and operation of campus development under the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts on population and housing. The section includes a description of the existing environmental setting as it relates to population and housing, and also provides a regulatory framework that discusses applicable state and local regulations. The section presents the significance criteria used to evaluate impacts on population and housing, and the results of the impact assessment, including any significant impacts and associated mitigation measures.

4.12.1 Environmental Setting

The City and County of San Francisco is the primary study area that would be affected directly by CPHP-related population and housing effects as well as by employment effects that could in turn result in demand for additional housing. However, effects may extend beyond San Francisco to neighboring counties in the Bay Area. The 2018 UCSF Transportation Commute Survey indicated that approximately 60 percent of UCSF students and employees commute from places within San Francisco, and therefore likely reside in San Francisco. Besides San Francisco, employee commuters largely travel from four other counties to UCSF campus sites: Alameda, Contra Costa, Marin, and San Mateo. Therefore, the study area for population and housing impacts includes San Francisco and the four surrounding counties. Population, housing and employment information on San Francisco and the four counties is presented below.

Study Area Population

In 2018, there were about 881,000 people living in San Francisco, an increase of approximately 9.4 percent, or about approximately 75,700 residents, since 2010. In addition, there were also approximately 363,100 households in San Francisco in 2018, an increase of approximately 5.1 percent, or about 17,290 households, since 2010. This rate of population and household growth is slightly higher than the rate of population and household growth in the five-county study area over the same period of time. In 2018, the population in the five-county study area was approximately 4.72 million, an increase of approximately 8.9 percent, or about 385,500 residents, since 2010. In addition, in 2018 there were also approximately 1.69 million households in the five-county study area, an increase of approximately 3.8 percent, or about 61,800 households, since 2010. However, the average household size in San Francisco in 2018 was slightly lower than the five-county study area with the average household size in San Francisco at 2.36 persons per household and the average household size in the five-county study area at 2.69 persons per household (DOF, 2019).

Study Area Housing

In 2018, there were approximately 397,100 housing units in San Francisco, an increase of approximately 5.5 percent, or 20,900 units, since 2010 (DOF, 2019). During the period from 2013 to 2017, San Francisco had an estimated homeowner vacancy rate of 0.8 percent and rental vacancy rate of 2.7 percent (U.S. Census, 2017). In comparison, the five-county study area contained approximately 1.80 million housing units in 2018, an increase of approximately 3.6 percent, or 63,300 units, since 2010. The average vacancy rate across the study area in 2018 was noticeably higher at 6.4 percent (DOF, 2019).

Study Area Employment

In 2018, approximately 718,700 people worked in San Francisco, an increase of 22 percent, or about 185,400 jobs, since 2010 (EDD, 2019a).[1] This estimate measures workers by place of work and includes full-time and part-time wage and salary employment; it does not include self-employed people, unpaid family workers, or private household employees (EDD, 2019b). In comparison the rate of job growth in the five-county study area was lower. In 2018, approximately 2.1 million people were employed in the study area, an increase of 15 percent, or about 307,700 jobs, since 2010.

Regional Projections

The Association of Bay Area Governments (ABAG) is the regional planning agency for the nine Bay Area counties and provides projections of future Bay Area population, housing, and employment. **Table 4.12-1** shows ABAG's current forecast for San Francisco and the four other counties that a majority of UCSF employees live in, which was prepared in 2017 for *Plan Bay Area*. The forecasts show that of the five counties, San Francisco will have the highest growth in population, households and jobs over the 2010–2040 planning period. The City's population is expected to increase by approximately 360,300 new residents between 2010 and 2040, which would represent a 45 percent increase over the City's 2010 population levels. Over the same 30-year period, the five-county region's population is expected to increase by 34 percent, or by nearly 1.50 million new residents. Household growth is expected to be slightly below population growth, with the number of households in San Francisco increasing by 40 percent between 2010 and 2040 and households in the five-county region increasing by 30 percent.

The rate of future job growth in San Francisco is expected to be similar to the rate of population growth. Between 2010 and 2040, San Francisco is expected to add about 294,700 new jobs, which would represent a 51 percent increase over its 2010 employment levels. Over the same 30-year period, the five-county region's employment is expected to increase by 39 percent, or by about 822,300 new jobs.

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[1] These estimates of employment by place of work count part-time and full-time jobs equally. People who hold more than one job may be counted more than once.

TABLE 4.12-1
PLAN BAY AREA FORECAST OF POPULATION, HOUSEHOLDS, AND EMPLOYMENT FOR SAN FRANCISCO AND THE FIVE COUNTY STUDY AREA (2010-2040)

Factor	2010	2040	2010 to 2040	
			Increase	Percent
Population				
San Francisco	809,145	1,169,485	360,340	45%
Alameda	1,515,230	2,092,370	577,140	38%
Contra Costa	1,051,830	1,387,295	335,465	32%
Marin	252,920	282,670	29,750	12%
San Mateo	721,195	916,590	195,395	27%
Five-County Region	4,350,320	5,848,410	1,498,090	34%
Households				
San Francisco	345,810	483,695	137,885	40%
Alameda	545,140	734,210	189,070	35%
Contra Costa	375,365	475,390	100,025	27%
Marin	103,210	111,585	8,375	8%
San Mateo	257,835	317,965	60,130	23%
Five-County Region	1,627,360	2,093,965	466,605	29%
Employment				
San Francisco	576,850	872,510	295,660	51%
Alameda	705,865	953,190	247,325	35%
Contra Costa	360,080	498,165	138,085	38%
Marin	121,730	134,915	13,185	11%
San Mateo	343,380	472,340	128,960	38%
Five-County Region	2,108,565	2,930,840	822,275	39%

NOTE: Numbers may not sum due to rounding

SOURCE: MTC and ABAG, Plan Bay Area: Projections 2040, November 2018.

4.12.2 Regulatory Framework

This section discusses University, State, and regional regulations pertaining to population, housing and employment. There are no federal laws and regulations related to population, housing or employment that are relevant to the proposed CPHP. One State law, SB 375, related to housing is relevant and is summarized below, along with University plans and policies that relate to population and housing. *Plan Bay Area 2040* which was prepared in response to SB 375 is also summarized below, as well as the Bay Area's Regional Housing Needs Allocation.

University of California

UCSF 2014 LRDP

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP campus-wide and Parnassus Heights campus site objectives relate to population and housing:

Campus-Wide Objectives

2. Accommodate UCSF's Growth Through 2035

A. Meet physical needs for growth in research, clinical, and instructional programs at appropriate locations.

B. Address the need for campus housing for students, postdoctoral scholars, house staff and junior and incoming faculty at main campus sites by constructing an adequate number of new units while taking into account financial feasibility and physical site constraints.

C. Provide additional amenities such as retail, permanent child care facilities, recreation and fitness facilities, improved outdoor areas, and other support services to the extent feasible, to enhance the quality of campus life and the public realm.

Campus Site-Specific Objectives

1. Parnassus Heights

D. Provide additional campus housing and improve campus life amenities including outdoor space.

E. Strive to better achieve the remaining unfulfilled components of the 1976 Regents' Resolution by reducing space, minimizing population growth, and improving transportation-related programs.

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Housing

H1. Make a positive contribution to San Francisco's affordable housing stock by directly providing housing and by using financial and technical resources to assist with the development of increased housing opportunities for UCSF students, staff, and faculty in order to relieve housing demand in the local community.

H2. Ensure that UCSF development will seek to avoid adversely affecting the availability and affordability of housing. Address the need for student and junior faculty housing by making additions to the existing housing stock, while respecting existing neighborhood character.

H3. Avoid displacement of existing residential units or individuals who could be displaced by converting housing to other uses. Continue the UCSF practice of not acquiring existing residential property for nonresidential use.

H4. Should UCSF lease or purchase existing residential property for residential use and displacement occurs, assist in securing suitable and equivalent replacement housing for existing residents or tenants prior to displacement – in the same neighborhood, if possible.

State

Senate Bill 375

Senate Bill 375 was enacted to encourage regions like the Bay Area to develop solutions to the challenge of growing congestion, which has disproportionately affected lower-income residents and burdened them with hours-long commutes on crowded roads, buses or trains. This bill requires regions to prepare a Sustainable Communities Strategy (or Alternative Planning Strategy) to reduce greenhouse gas emissions by linking growth to transit, resulting in a different distribution of jobs and housing growth than under pre-strategy projections.

Regional

Plan Bay Area 2040

Plan Bay Area 2040 was developed to comply with Senate Bill 375. This plan serves as the Bay Area's Sustainable Communities Strategy and was prepared by ABAG and the Metropolitan Transportation Commission (MTC). The *Draft Plan Bay Area 2040* was published in 2013, and the final was published in July 2017. *Plan Bay Area 2040* provides an update to the region's long-range transportation plan and sustainable communities strategy; it projects household and employment growth in the Bay Area through 2040, provides a roadmap for accommodating expected growth, and connects it all to a transportation investment strategy that strives to move the Bay Area toward key regional goals for the environment, economy, and social equity. *Plan Bay Area 2040* is advisory; adherence by each jurisdiction is not compulsory.

ABAG and MTC are currently preparing Plan Bay Area 2050, focusing on the economy, environment, housing and transportation. It is expected that Plan Bay Area 2050 will be completed in mid-2021 (MTC, 2019).

Regional Housing Need Planning for the San Francisco Bay Area: 2014-2022

The Regional Housing Need Allocation (RHNA) is the state-mandated process under the State Housing Law to identify the total number of housing units (by affordability level) that each jurisdiction must accommodate. As part of this process, the California Department of Housing and Community Development (HCD) identifies the total housing need for the San Francisco Bay Area for an eight-year period (in the current cycle, from 2015 to 2023). ABAG must then develop a methodology to distribute this need to local governments in a manner that is consistent with the development pattern included in the Sustainable Communities Strategy (SCS).[2] Once a local government has received its final allocation, it must revise its general plan housing element to accommodate its portion of the region's housing need.

The housing allocation is expressed not only as an overall housing production target to alleviate tight housing market conditions and reduce long-distance commuting, but also, as separate targets for production of housing affordable to various household income categories. Based on this two-fold expression, San Francisco's share of the regional housing need for 2014 through 2022

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[2] The SCS is a newly required element of the Regional Transportation Plan (RTP), integrating land use and transportation strategies to achieve California Air Resources Board (CARB) emissions reduction targets.

is approximately 28,900 new units, with approximately 57 percent of the target to provide affordable housing to households making what is considered *above moderate*, or more than 120 percent of the area median income or less (CCSF, 2015).[3] This represents a little over 15 percent of the regional total from 2014 to 2022 and amounts to a total citywide housing production goal of affordable and market rate units of about 3,600 units per year. San Francisco's share of the RHNA is incorporated into the City's 2014 Housing Element of its General Plan (adopted in April 2015). As required by State law, the City's Housing Element discusses the City's fair share allocation of regional housing needs by income as projected by the ABAG. Cities in the four study area counties have also prepared updated General Plan Housing Elements in response to the latest RHNA for the Bay Area.

4.12.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

c) Exceed the LRDP EIR standard of significance by creating a demand for housing outside the market area where the facilities or site are located?

Criteria a) and c) are addressed in Impact POP-1 as they address overlapping issues, and criteria b) is addressed in Impact POP-2, in the Impact Analysis, below.

Approach to Analysis

The analysis estimates the increase in campus population and related housing needs that would result from implementation of the CPHP. To evaluate the relative magnitude of the increases in population and housing needs resulting from implementation of the Plan, the analysis compares these estimates with growth estimates developed for both the City and the entire five-county study area. "Substantial unplanned population growth" resulting from implementation of the CPHP is defined as an increase in population or employment that is inconsistent with growth anticipated in adopted planning documents.

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[3] Income levels are broken into four categories: very low income is 50 percent or less of area median income, low income is 51 to 80 percent of area median income, moderate income is 81 to 120 percent of area median income, and above moderate is more than 120 percent of area median income.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact POP-1: Implementation of the CPHP would induce population growth in the San Francisco Bay area, which could create demand for housing outside the market area. (Less than Significant)

CPHP

The proposed CPHP would result in population growth on the Parnassus Heights campus site through increased employment, patients, and visitors. The proposed CPHP would accommodate an increase in the campus site’s average daily (daytime) population from approximately 17,440 under existing conditions to about 23,230 by the year 2030 and roughly 25,290 by the year 2050 (see **Table 4.12-2**).

TABLE 4.12-2
PARNASSUS HEIGHTS CAMPUS SITE: EXISTING AND PROJECTED AVERAGE DAILY POPULATION (DAYTIME)

	Existing (2018) Population	Projected Population at 2030	Projected Population at 2050	Growth between Existing (2018) and 2030	Growth between Existing (2018) and 2050
Students	3,683	4,187	4,187	504	504
Faculty and Staff	7,395	10,992	12,075	3,597	4,680
Subtotal	*11,078*	*15,179*	*16,262*	*4,101*	*5,184*
Patients	2,984	3,275	3,810	291	826
Visitors	3,375	4,771	5,221	1,396	1,846
Subtotal	*6,359*	*8,046*	*9,031*	*1,687*	*2,672*
Total	**17,437**	**23,225**	**25,293**	**5,788**	**7,856**

SOURCE: UCSF, 2019

Because patients and visitors would use the campus site for short periods and would already be living in the area, they are not considered in the population increase that would result from CPHP implementation. Therefore, when focusing on increases in students, faculty and staff, the CPHP would result in a population increase of approximately 4,100 by 2030 and about 5,180 by 2050. In addition, while the proposed CPHP has a horizon year of 2050, growth projections provided by ABAG are only available to 2040, so as a conservative approach, this analysis assumes the full CPHP population increase expected by 2050 would occur in 2040.

As indicated in the *Environmental Setting*, according to the *Plan Bay Area 2040*, approximately 576,850 people worked in San Francisco in 2010. Between 2010 and 2040, San Francisco is expected to add about 295,700 new jobs, which would represent a 51 percent increase over its 2010 employment levels or an annual job growth rate of about 1.7 percent. Employment growth at the Parnassus Heights campus site was included in the 2014 LRDP and is potentially accounted for in the employment projections for San Francisco included in the *Plan Bay Area 2040.* However, if conservatively it is assumed that all new jobs under the CPHP are not included in the projections and would be incremental, the addition of about 5,180 jobs over a period of 30 years or about 173 new jobs per year would not substantially increase the employment levels in San Francisco above those projected by ABAG. The amount of employment growth at the Parnassus Heights campus site under the proposed CPHP would not add significantly to the amount of employment forecast for San Francisco during this period.

Conservatively assuming that all new students and employees at the Parnassus Heights campus site under the proposed CPHP would be new to San Francisco and the region, the increase in students and employment would result in an increase in the residential population of San Francisco and other communities in the four study area counties. Assuming that future students and employees would make the same residential location decisions as current UCSF students and employees, approximately 60 percent of new students and employees would live in San Francisco. There would also be additional population living in those UCSF employee and student households. Assuming only one UCSF employee/student per household and based on 2.36 persons per household for San Francisco, the total population in San Francisco associated with UCSF growth under the proposed CPHP would be approximately 5,800 by 2030 and about 7,330 by 2050. Between 2010 and 2040, San Francisco is expected to add about 360,340 new residents, which would represent a 45 percent increase over its 2010 population levels. The share of the City's 2040 population growth associated with the population growth under the proposed CPHP by 2030 would be approximately 1.6 percent and by 2050 about two percent.

Alternatively, conservatively assuming that all future students and employees would live in San Francisco, the total population in the City associated with UCSF growth under the proposed CPHP would be approximately 9,680 by 2030 and about 12,220 by 2050. The share of the City's 2040 population growth associated with the population growth under the proposed CPHP by 2030 would be approximately 2.7 percent and by 2050 about 3.4 percent.

The market area for housing for UCSF employees is the five-county study area discussed in the *Environmental Setting* (i.e., San Francisco, Alameda, Contra Costa, Marin, and San Mateo Counties). Generally, the housing demand associated with employment growth under the proposed CPHP would be satisfied by the housing that could be added in San Francisco and in other parts of the region. Between 2010 and 2040, San Francisco is expected to add about 137,900 new households, which would represent a 40 percent increase over its 2010 household levels. Assuming the current pattern of residential location preferences, the housing demand in San Francisco associated with UCSF student and employment growth under the CPHP by 2030 would represent approximately 1.8 percent of the projected household growth, and by 2050 would represent about 2.3 percent of the projected household growth — shares that would not be anticipated to trigger shifts of demand to other parts of the study area or beyond the regional housing market area.

Further, again conservatively assuming that all future students and employees would live in San Francisco, housing demand in the City associated with UCSF student and employment growth under the CPHP by 2030 would represent approximately three percent of the projected household growth, and by 2050 would represent about 3.8 percent of the projected household growth.

UCSF currently has 222 housing units on the Parnassus Heights campus site (see **Table 4.12-3**). Under the CPHP, housing on the campus site would increase to a total of 364 housing units by 2030, and to a total of 984 units by 2050. Development of additional residential units on the Parnassus Heights campus sites would allow UCSF to provide more on-campus housing to students, postdoctoral scholars, clinical residents, and faculty near their classrooms and workplaces, thereby reducing demand for off-campus housing in San Francisco and the Bay Area. It would also promote sustainability objectives of the 2014 LRDP by reducing the amount of private vehicle and UCSF shuttle traffic between these and other campus sites. Additional UCSF housing would also serve to improve the University's jobs-housing balance and support the City's housing goals.

TABLE 4.12-3
PARNASSUS HEIGHTS CAMPUS SITE: EXISTING AND PROJECTED HOUSING UNDER CPHP

	Existing (2018) Units	(2030) Total Housing Units after CPHP Initial Phase	(2050) Total Housing Units after CPHP Future Phase
Aldea	172	314	504
Avenue Houses	32	32	32
Irving Street Housing	18	18	18
West Side Housing	--	--	430
Total	**222**	**364**	**984**

SOURCE: UCSF, 2020

Implementation of the proposed CPHP would induce population growth in the Bay Area, but the population growth would not be substantial in comparison to the growth that is projected and planned for San Francisco and the four study area counties in *Plan Bay Area 2040* and the local General Plans for the study area communities. Further, the population growth would not result in a demand for new housing that would exceed the capacity of the five-county market area. The CPHP's impact related to population and housing would be less than significant.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project is intended to better facilitate entry onto the campus from Irving Street. The Irving Street Arrival project would support the movement of the new population associated with the proposed CPHP through campus, however, no population is directly associated with this project. As a result, the Irving Street Arrival project would not induce population growth in the San Francisco Bay area, and no population and housing impact would occur.

Mitigation: None required.

Research and Academic Building

As discussed above, while implementation of the proposed CPHP would induce population growth in the Bay Area, it would not induce population growth that is substantial compared to the study area growth projections and to the extent that demand for new housing would exceed the capacity of the market area. The Research and Academic Building (RAB) would provide academic and research space for approximately 939 faculty and staff. As this population sub-set is accounted for in the total population growth that would occur under the proposed CPHP, the RAB also would not induce population growth to the extent that demand for new housing would exceed the capacity of the market area, and this impact is considered less than significant.

Mitigation: None required.

Initial Aldea Housing Densification

The initial densification of the Aldea Housing complex would remove three existing 3-story housing structures containing 42 units, and construct three 8-story housing structures and one 5-story housing structure that would contain 184 units, increasing the number of dwelling units by 142 units. These units would be reserved for existing and future students, faculty and staff on the campus site and would not be available to the public. As a result, unlike a residential project open to the public that could attract population from outside the City or five-county study area, the initial Aldea Housing Densification project would serve some of the increase in campus population associated with the proposed CPHP described above. For this reason, the initial densification project would not induce population growth in and of itself, and this impact is considered less than significant.

Mitigation: None required.

Initial Phase Improvements

As described in Chapter 3, *Project Description*, the Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. The Initial Phase improvements would serve in part to help accommodate the population growth anticipated under the CPHP, however, no population is directly associated with these improvements. As a result, the Initial Phase improvements would not induce population growth in the San Francisco Bay area, and no population and housing impact would occur.

Mitigation: None required.

Impact POP-2: Implementation of the CPHP would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. (Less than Significant)

CPHP

Implementation of the proposed CPHP would result in the addition of 762 new on-campus housing units: 332 net new housing units as part of Aldea Housing complex reconstruction and 430 new housing units as part of the West Side Housing project. In order to construct the new units in the Aldea Housing complex, all 12 existing Aldea Housing buildings containing 172 units, would be demolished in order to make way for the new 12 buildings that would provide for a total of 504 units. The new Aldea Housing development would be phased over time to minimize displacement of on-campus housing residents and the amount of disruption caused by construction activities. Specifically, the Initial Phase would remove three 3-story housing structures, which provide 42 units, and replace them with three 8-story housing structures and one 5-story housing structure, which would provide 184 units (a net increase of 142 units). The Future Phase would remove the remaining nine 3-story structures, which provide 130 units, and replace them with eight 5-story structures, which would provide 320 units (a net increase of 190 units). The West Side Housing project would not require the demolition of any existing residential units.

Only the residents of the first three buildings demolished during the initial Aldea Housing Densification project would be temporarily displaced. In total, approximately 42 households, or about 100 residents, would be temporarily displaced. UCSF recently opened the Tidelands residential complex (595 units) south of the Mission Bay campus site in the City's Dogpatch Neighborhood. In addition, UCSF may lease housing units owned by UC Hastings College of the Law. Residents temporarily displaced during the initial phase of the Aldea Housing Densification project could be housed in these units or other available campus housing. Prior to implementing the project, UCSF would develop a plan to ensure that displaced residents receive housing accommodations. Furthermore, in addition to 42 households temporarily displaced, the four structures constructed during the initial Aldea Housing Densification would also provide enough units to accommodate the residents that would be temporarily displaced due to the demolition of the remaining nine structures within the Aldea Housing complex that would occur under the Future Phase of the Aldea Housing Densification project. Residents in the remaining structures could be transitioned to the four structures constructed during the initial Aldea Housing Densification phase, or to other available campus housing, prior to the construction of the Future Phase Aldea Housing Densification phase. As a result, the Future Phase Aldea Housing Densification would not result in a temporary displacement of residents off the campus site.

Given the size of the population to be displaced during the initial Aldea Housing Densification project, that the displacement would be temporary, and that other housing provided by UCSF exists, implementation of the CPHP would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere, and this impact is considered less than significant.

Mitigation: None required.

Irving Street Arrival

No existing housing units would be affected by the proposed Irving Street Arrival project. As a result, implementation of the Irving Street Arrival project would not displace substantial numbers of existing residents or housing, necessitating the construction of replacement housing elsewhere. No displacement impact would occur.

Mitigation: None required.

Research and Academic Building

The RAB project would be constructed on the site of the existing UC Hall building; no housing units are located within the structure. As a result, implementation of the RAB project would not displace substantial numbers of existing residents or housing, necessitating the construction of replacement housing elsewhere. No displacement impact would occur.

Mitigation: None required.

Initial Aldea Housing Densification

As discussed above, the initial phase of the Aldea Housing Densification project would result in the temporary displacement of 42 households, or about 100 residents. These residents would have the option to move back to the Aldea Housing complex when the initial phase is complete. Given the size of the population to be displaced and that the displacement would be temporary, implementation of the initial phase of the Aldea Housing Densification project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere, and this impact is considered less than significant.

Mitigation: None required.

Initial Phase Improvements

The Initial Phase improvements would not displace existing people or housing, necessitating the construction of replacement housing elsewhere. Accordingly, there would be no impact.

Mitigation: None required.

Cumulative Impacts

Impact C-POP-1: The CPHP, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to significant cumulative population and housing impacts. (Less than Significant)

Development of cumulative projects in the City and the remaining four counties could result in substantial unplanned population growth in San Francisco and the Bay Area, thus resulting in a potentially significant cumulative impact with respect to population and housing. The proposed CPHP would accommodate an increase in students and employees at the Parnassus Heights campus site from approximately 11,100 in 2018 to about 16,300 by 2050, an increase of approximately 5,200 students and employees. Population and housing estimates discussed above in Table 4.12-1 were based on *Plan Bay Area* forecasts through the year 2040, which includes all planned and approved cumulative development and associated population and housing information. As stated above under Impact POP-1, development under the proposed CPHP would contribute approximately 2.3 to 3.8 percent to projected citywide household growth by 2040, and about two percent to projected citywide employment growth by 2040. In addition, some of the additional population associated with the proposed CPHP would be housed in the approximately 762 new units planned under the proposed CPHP on the Parnassus Heights campus site, thereby reducing demand for off-campus housing in San Francisco and the Bay Area. Although implementation of the proposed CPHP would induce population growth in the Bay Area, the contribution made by the proposed CPHP would not be cumulatively considerable and the impact would be less than significant.

Mitigation: None required.

4.12.4 References

California Department of Finance (DOF), 2019. Report E-5: Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2019, with 2010 Benchmark. May 1, 2019.

California Employment Development Department (EDD), 2019a. Employment by Industry Data. Available at: https://www.labormarketinfo.edd.ca.gov/data/employment-by-industry.html. Accessed November 15, 2019.

EDD, 2019b. LMI Frequently Asked Questions. Accessed at: *http://www.labormarketinfo.edd.ca.gov/FAQs/FAQs_DD.html*. Accessed on October 18, 2019.

City and County of San Francisco (CCSF), 2015. General Plan Housing Element. Adopted April 27, 2015.

Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2018. *Plan Bay Area: Projections 2040*. November 2018.

MTC and ABAG, 2019. *What is Plan Bay Area 2050?* Available at: https://www.planbayarea.org/2050-plan/plan-bay-area-2050.

U.S. Census Bureau, 2018. 2013-2017 American Community Survey 5-Year Estimates: Selected Housing Characteristics, San Francisco County, California. December 6, 2018.

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4.13 Public Services

This section assesses the potential for construction and operation of campus development under the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts on public services, including police protection, fire protection, and public schools. The section includes a description of the existing environmental setting as it relates to public services, provides a regulatory framework that discusses applicable state and local regulations, identifies criteria used to determine impact significance, and discusses potential impacts, and regulatory mechanisms and/or feasible mitigation measures, as necessary, to reduce significant impacts. Please refer to Section 4.14, *Recreation*, for a discussion of CPHP effects on local and regional parks.

4.13.1 Environmental Setting

Fire Services

UCSF does not have its own fire department. The San Francisco Fire Department (SFFD), headquartered at 698 Second Street, provides fire protection and emergency services to the City of San Francisco, as well as to all UCSF facilities within the City. SFFD serves an estimated 1.5 million people within the 49 square miles of the city. Emergency medical transportation to San Francisco hospitals is provided by a dynamically deployed fleet of both public and private ambulance services.

Fire suppression companies are organized into two divisions, which are further divided into nine battalions, located throughout the City. As of 2019, the SFFD consists of 1,780 firefighting and emergency medical field personnel and resources, including 43 Engine companies, 19 Truck companies, a dynamically deployed fleet of Ambulances, two Heavy Rescue Squad units, two Fireboats, and multiple special purpose units. (SFFD, 2019a; SFFD, 2019b).

The San Francisco Public Utilities Commission (SFPUC)-City Distribution Division operates and maintains an Auxiliary Water Supply System (AWSS) used for fire protection use only. This high pressure water supply system is distinct and separate from the City's domestic water and fire hydrant system. The AWSS consists of 135-mile pipeline network, a high elevation reservoir, two large capacity tanks, and two seawater pumping stations (SFPUC, 2019).

The nearest fire station to the Parnassus Heights campus site is Station No. 12, located at 1145 Stanyan Street, about 0.5 mile east of the campus core. Station No. 12 responds to all calls for fire protection service on the campus site. Other fire stations in proximity to the Parnassus Heights campus site include Station 20 at 285 Olympia Way (0.4 miles south of the Aldea Housing complex, and 1.5 miles south of the campus core); Station 22 at 1290 16th Avenue (1.0 mile west of the campus core); and Station 24 at 100 Hoffman Avenue (2.0 miles from the campus site).

Table 4.13-1 provides a summary of the staffing and equipment at each of the stations near the Parnassus Heights campus site.

TABLE 4.13-1
SUMMARY OF EXISTING SFFD STAFFING AND EQUIPMENT IN CAMPUS SITE AREA

SFFD Fire Station	Staffing per Shift	Fire Engines/ Trucks
No. 12: Stanyan St./Grattan St.	9	E12 T12
No. 20: Olympia Way/Clarendon Ave.	5	E20 Mobile Air 1
No. 22: 16th Ave./Irving St.	4	E22
No. 24: Hoffman Ave./Alvarado St.	4	E24

NOTE: E = Engine Company; T = Truck Company

SOURCE: San Francisco Fire Department, 2019a

Table 4.13-2 summarizes SFFD total responses at the four designated response stations in the year from August 2017 to August 2018.

TABLE 4.13-2
SUMMARY OF SFFD RESPONSES FOR FIRE STATIONS IN CAMPUS SITE AREA
(AUGUST 2017 TO AUGUST 2018)

SFFD Fire Station No.	Fire Responses	Medical Responses	Total Responses
12	1,493	1,286	2,779
20	206	309	515
22	476	1,018	1,494
24	387	383	770

SOURCE: San Francisco Fire Department, 2019a.

Fire Support Standards

Emergency calls for fire and medical services at UCSF campus sites are routed to the SFFD for dispatching. Response times generally reflect the seriousness of the call. As of 2019, the SFFD has a response time goal for the first arriving unit of 5:00 minutes, while actual response times averaged 3:20 minutes (SFFD, 2019a).

Police Services

University of California, San Francisco Police Department

The University of California, San Francisco Police Department (UCPD) provides police protection services for University of California properties and facilities that comprise UCSF, including the Parnassus Heights campus site. The UCPD is responsible for approximately 60,000 patients, visitors, students, faculty, staff and affiliates. Headquartered at 654 Minnesota Street, the UCPD employs approximately 130 authorized staff. The UCPD also operates a patrol station at the Parnassus Heights campus site. The UCPD is comprised of the Field Services

Division, which provides police and investigative services; the Security Services Division; the Professional Standards Division; and the Homeland Security Emergency Management Division (UCPD, 2019).

As of 2016, the service ratio of police personnel to UCSF population is 1.93 sworn police officers per 1,000 persons (UCPD, 2019). Police officers patrol by car, bicycle and on foot to maintain high-profile, proactive and preventive public safety services (UCPD, 2016). In 2016, UCSF police responded to over 45,000 calls for service and processed 410 arrests. In addition, uniformed officers conducted 930 Community Orientated Policing and Problem Solving (COPPS) activities, along with approximately 4,500 directed foot patrols on campus properties (UCPD, 2016).

San Francisco Police Department

The San Francisco Police Department (SFPD) is responsible for police protection services in the City. The UCPD has a mutual-aid agreement with the SFPD to provide cooperative assistance within a 1-mile radius of each UCSF campus site. A memorandum of understanding between the UCPD and the SFPD establishes that UCPD has exclusive jurisdiction over police service on UCSF properties. Depending on the nature of the emergency, the UCPD may request assistance from the SFPD.

SFPD is comprised of six bureaus, including Field Operations, which includes Investigations and Patrol Divisions; Special Operations; Airport; Professional Standards and Principled Policing; Administration; and Chief of Staff. The Patrol Division is divided into the Metro Division and the Golden Gate Division, which oversee 10 separate districts. The Parnassus Heights campus site is located within the Park District of the Golden Gate Division, which is headquartered at 1899 Waller Street.

The SFPD is mandated by the City Charter to maintain a sworn staff of 1,971, excluding officers assigned to the San Francisco International Airport and officers not available for field duty (e.g., due to on-duty injuries, temporary modified duty, medical leave, and administrative leave). During 2017, the Department averaged 1,873 total full-duty sworn officers (SFPD, 2018).

Public Schools

San Francisco Unified School District

The San Francisco Unified School District (SFUSD) operates San Francisco’s public schools. During the 2018–2019 academic year, the SFUSD managed 115 schools (73 elementary schools, 16 middle schools, 18 high schools, six alternative schools, and two continuation schools), with a total enrollment of approximately 60,390 students (CDE, 2019) and a capacity to accommodate about 63,400 students (SFUSD, 2020a).

In general, student enrollment within the SFUSD has steadily decreased since the late 1990s. However, enrollment has begun to increase since reaching a low of approximately 55,100 during the 2007–2008 academic year (CDE, 2019). The SFUSD anticipates that elementary school, middle school and high school enrollment is anticipated to increase throughout its projection horizon of 2030; much of the increase is expected to result from new housing development in the City (SFUSD, 2020b).

Currently, any student in the City can choose to apply to any SFUSD school. However, the Aldea Housing complex and the site of the future West Side Housing complex are located within the attendance boundaries of Clarendon Alternative Elementary School (K-5), located at 500 Clarendon Avenue, which feeds into Presidio Middle School (6-8), located at 450 30th Avenue. All high schools within the SFUSD are open to any student, and thus do not have attendance boundaries. Finally, two of the Citywide elementary schools with specialized instruction are located near the Parnassus Heights campus site: (1) Alice Fong Yu Alternative School (grades K-8), located at 1541 12th Avenue, which is a Chinese immersion school; and (2) Rooftop Alternative School, located at 443 Burnett Avenue (grades PreK-4) and at 500 Corbett Avenue (grades 5-8), which is a school that emphasizes the arts.

The SFUSD will not enroll students beyond the capacity of each school. However, demand patterns for each school, which are different than capacity, do vary. For example, in March 2019, the Clarendon School received 1,324 enrollment requests for 42 available seats (SFUSD, 2020c).

4.13.2 Regulatory Framework

State

California Master Mutual Aid Agreement

The California Master Mutual Aid Agreement is a framework agreement between the State of California and local governments for aid and assistance by the interchange of services and facilities, including but not limited to fire, police, medical and health, communication, and transportation services and facilities to cope with the problems of rescue, relief, evacuation, rehabilitation, and reconstruction.

Fire Regulations

All projects undertaken at UCSF are subject to the approval of the State Fire Marshal and compliance with California Health and Safety Code Sections 13000 et seq. which sets forth State fire regulations concerning building standards (as set forth in Title 24 of the California Building Code), fire protection and notification systems, fire protection devices (such as fire extinguishers and smoke alarms), high-rise building and child care facility standards, and fire suppression training. California Fire Code Section 403.2 addresses public safety for both indoor and outdoor gatherings, including emergency vehicle ingress and egress, fire protection, emergency medical services, public assembly areas and the directing of both attendees and vehicles (including the parking of vehicles), vendor and food concession distribution, and the need for the presence of law enforcement and fire and emergency medical services personnel at the event. The Fire Marshal's office has review and approval authority over all development proposals on the Parnassus Heights campus site.

Police Regulations

As noted above, the UCPD has a mutual-aid agreement with the SFPD to provide cooperative assistance within a 1-mile radius of each UCSF campus site. A memorandum of understanding between the UCPD and the SFPD establishes that UCPD has exclusive jurisdiction over police service on UCSF properties.

Projects implemented under the proposed CPHP would be required to comply with applicable rules of the California Office of Statewide Health Planning & Development (OSHPD) with respect to the incorporation of security features in standard building design plans.

Schools

The University is not subject to fee requirements such as those paid by developers pursuant to California Government Code Sections 53080, 65995, and 66001.

University of California

UCSF 2014 LRDP

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP campus-wide objective relates to public services:

Campus-Wide Objectives

1. **Respond to City and Community Context**
   - A. Coordinate with City agencies in areas of mutual interest.
   - F. Consider neighborhood and city-wide impacts related to UCSF's physical growth.

The UCSF 2014 LRDP also included *Community Planning Principles*, which were produced in collaboration with the UCSF Community Advisory Group:

Community Planning Principles

Amenities and Services/Public Safety

A2. Support local efforts to increase fire and police protection, especially in neighborhoods with a high incidence of crime, and ensure that the campus safety officers are sensitive to the surrounding community.

A3. Provide adequate security measures, including lighting, particularly in parking garages and exterior parking areas, to enhance a safe environment on all campus sites. These security methods should be designed in a manner that is sensitive to the surrounding community.

4.13.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

   i. Fire protection?

   ii. Police protection?

   iii. Schools?

   iv. Parks?

   v. Other public facilities?

Criteria Not Analyzed

As stated in the Initial Study, there would no impact related to the following topic for the reasons described below:

- ***Physical impacts associated with the provision of new or physically altered police facilities, or other public facilities.*** The increase in daily population at the Parnassus Heights campus site under the CPHP will increase demand on UCPD services. It is UCPD's practice to review staffing levels and to provide necessary staffing to meet standard response times (less than 3 minutes for emergency/in-progress calls and less than 5 minutes for normal service calls). New staffing required to serve the increase in daily population as a result of the proposed CPHP would either be accommodated by existing facilities or within new facilities that are covered under the building space envelope being analyzed in the CPHP EIR. The UCPD also has a mutual-aid agreement with the SFPD to provide cooperative assistance within a 1-mile radius of the Parnassus Heights campus site. However, the SFPD is generally only called where an unusual need for assistance is identified. As a result, daily campus population growth under the proposed CPHP is not anticipated to substantially increase demand for SFPD services, such that new or altered police facilities could be required. For these reasons, impacts to police services would be less than significant, and this topic will not be evaluated further in this section. Similarly, campus development under the proposed CPHP would not affect any other public facilities (besides fire service and public schools, which are addressed below), and therefore, will not be evaluated further in this section.

Approach to Analysis

Implementation of the proposed CPHP, including the three Initial Phase projects and Initial Phase improvements, could have a significant impact if (1) it would require the construction of new or physically altered governmental facilities in order to maintain acceptable levels of public services, and (2) the construction or alteration of such facilities would result in one or more substantial adverse impacts on the environment.

In general, development that would occur on Parnassus Heights campus site under the proposed CPHP would increase demand for public services. While some impacts would result from on-campus activities, such as new buildings requiring additional fire coverage, other impacts would occur with the increase in population on the campus site and in surrounding communities.

Public service providers that would be affected by the changes in the proposed CPHP were consulted to determine if new facilities would need to be built, or existing facilities would need to be expanded, in order to maintain current levels of service, including response times, service ratios and other performance objectives. If new or altered public service facilities are determined to be required to serve new development on the Parnassus Heights campus site, then the analysis evaluates whether construction of such facilities would have a substantial adverse physical impact on the environment. For example, if the SFFD determined that a new fire station would be required to be constructed to maintain adequate service levels for fire protection, the impact analysis would evaluate whether construction or operation of the new fire station would have significant impacts on the physical environment.

For purposes of the impact analysis, it is assumed that all temporary and permanent improvements under the CPHP would be designed and constructed in compliance with all applicable building and fire codes, which include requirements for fire alarms, security systems, smoke detectors, sprinkler systems, fire extinguishers, and the number and location of exits.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact PUB-1: Implementation of the CPHP would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives. (Less than Significant)

CPHP

In 2018, the estimated population on the Parnassus Heights campus site, including faculty, staff, patients and visitors, was approximately 17,400. By 2050, the total population at the Parnassus Heights campus site is projected to reach approximately 24,900, an increase of nearly 7,500. The population growth that would occur under the proposed CPHP would result in an incremental increase in demand for fire protection services at the Parnassus Heights campus site.

The population increase associated with the proposed CPHP would be minimal in comparison to the population served by the existing fire stations near the Parnassus Heights campus site. The increase in calls for fire protection and medical emergency response would not be substantial in light of the existing demand and capacity for fire protection and emergency medical services in the City. The Parnassus Heights campus site is located in an urban area and would not extend demand of the SFFD beyond the current limits of its service area. The anticipated population increase associated with implementation of the proposed CPHP would neither adversely affect SFFD service standards nor require an increase in SFFD staff and/or equipment that would require the construction of new fire protection facilities (SFFD, 2019b).

Furthermore, development under the proposed CPHP would be designed to comply with building and fire codes and include appropriate fire safety measures and equipment, including but not limited to, use of fire retardant building materials, inclusion of emergency water infrastructure (e.g., fire hydrants and sprinkler systems), installation of smoke detectors and fire extinguishers, emergency response notification systems and provision of adequate emergency access ways for emergency vehicles.

As such, with implementation of the proposed CPHP, the existing fire stations in the vicinity of the Parnassus Heights campus site would be adequate to meet the increases in demand for fire protection and emergency medical response services associated with campus development under the proposed CPHP, and no additional new or physically altered facilities would be necessary. Therefore, implementation of the proposed CPHP would have a less than significant impact regarding the construction of new or physically altered fire protection facilities.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project would not substantially increase the amount of building space or increase population on the campus site. Regardless, this project would be designed and constructed to comply with building and fire codes and include appropriate fire safety measures and equipment. The project would not increase the demand for fire service such that new or altered fire protection facilities would be required. The effect would be less than significant.

Mitigation: None required.

Research and Academic Building

The proposed Research and Academic building (RAB) would be designed and constructed to comply with building and fire codes and include appropriate fire safety measures and equipment, including but not limited to, use of fire retardant building materials, inclusion of emergency water infrastructure (fire hydrants and sprinkler systems), installation of smoke detectors and fire extinguishers, emergency response notification systems and provision of adequate emergency access ways for emergency vehicles. While the project would increase the amount of building space and population on the campus site, for the same reasons set forth above for the CPHP as a whole, this project would not substantially increase the demand for fire services such that such that new or altered fire protection facilities would be required. The effect would be less than significant.

Mitigation: None required.

Initial Aldea Housing Densification

During the initial phase of Aldea Housing Densification project, three existing 3-story housing structures would be replaced with three 8-story housing structures, and one 5-story housing structure. This initial housing densification project would increase the residential population at the campus site. The project would be designed and constructed to comply with building and fire codes and include appropriate fire safety measures and equipment, including but not limited to, use of fire retardant building materials, inclusion of emergency water infrastructure (fire hydrants and sprinkler systems), installation of smoke detectors and fire extinguishers, emergency response notification systems and provision of adequate emergency access ways for emergency vehicles. While this project would increase the amount of building space and population on the campus site, for the same reasons set forth above for the CPHP as a whole, it would not substantially increase the demand for fire services such that such that new or altered fire protection facilities would be required. The effect would be less than significant.

Mitigation: None required.

Initial Phase Improvements

As described in Chapter 3, *Project Description*, the Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. These improvements would be designed and constructed to comply with all applicable building and fire codes and include appropriate fire safety measures and equipment. These improvements would not increase the demand for fire services such that such that new or altered fire protection facilities would be required. The effect would be less than significant.

Mitigation: None required.

Impact PUB-2: Implementation of the CPHP would not result in substantial adverse physical impacts associated with the provision of new or physically altered public school facilities, need for new or physically altered public school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives. (Less than Significant)

CPHP

The University sets an occupancy policy for all campus housing that serves as a restriction on the number of potential school age children that could live in UCSF facilities. There are currently 114 children living in student housing at the Parnassus Heights campus site. UCSF estimates that an additional approximately 67 children could potentially reside in housing on the Parnassus Heights campus site by 2030, and an additional 55 children by 2050, for a total estimated increase of 122 children living on the campus site under the CPHP. It is conservatively assumed for purposes of this analysis that this increase in children would all attend SFUSD schools.[1]

As discussed above, capacity does exist district wide to accommodate additional students with a surplus of approximately 3,010 seats. However, the district expects an increase of 5,000 students by 2030 (SFUSD, 2020b), which would exceed available capacity. The SFUSD has a number of options available to accommodate new students, including new school-age students generated by on-campus housing that is proposed under the CPHP. These options include building new schools (using 2016 Bond allocated funding for new construction in the Mission Bay and Bayview neighborhoods), increasing capacity at existing schools, and/or re-opening former school sites (SFUSD, 2020a). The construction of each new school would be addressed by project-specific CEQA review. Although the site of each new school is not known, it is expected that each school would be constructed on underutilized parcels of land given the City's urban environment. As a result, potential impacts associated with each new school are expected to be less than significant or if potentially significant, capable of being reduced to a less than significant level with mitigation. With regard to increasing capacity at existing schools and/or re-opening previously closed schools, these activities are not expected to result in significant environmental impacts as these school sites have been previously disturbed and are located in urban environments, and the construction activities of individual projects would be of limited duration. For these reasons, implementation of the CPHP would not result in substantial adverse physical impacts associated with the provision of new or physically altered public school facilities, and this impact is less than significant.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project mainly involves modifications to the existing Medical Building 1 in order to develop a new and/or reconfigured multi-story vertical circulation space between Medical Building 1 and Milberry Union. The project would not increase the residential population on the campus site, and therefore not result in new school-age children requiring school services. There would be no effect on schools.

Mitigation: None required.

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[1] As a comparison, if the increase in school age children was estimated using statewide student yield factors based on increases in housing (i.e., 0.5 students per dwelling unit for grades K through 6, and 0.2 students per dwelling unit for grades 7 through 12), then the increase in 742 housing units under the CPHP would yield a student increase of approximately 534 new students. However, the application of these student yield factors to the CPHP is not realistic as the potential residents in campus housing would be overwhelmingly graduate students with fewer children than the general population, and furthermore, a notable portion of the proposed dwelling units would be single-occupancy units.

Research and Academic Building

The proposed RAB would not increase the residential population on the campus site, and therefore not result in new school-age children requiring school services. There would be no effect on schools.

Mitigation: None required.

Initial Aldea Housing Densification

During the initial phase of housing densification on the Aldea Housing complex, three existing 3-story housing structures would be replaced with three 8-story housing structures and one 5-story housing structure. The increase in children associated with this initial phase (67) that would potentially reside in housing on the Parnassus Heights campus site are a subset of the overall increase in children living on the campus site under the CPHP. For the same reasons discussed above for the CPHP as a whole, the initial densification of Aldea housing would not result in substantial adverse physical impacts associated with the provision of new or physically altered public school facilities, and this impact is less than significant.

Mitigation: None required.

Initial Phase Improvements

The Initial Phase improvements would not increase the population on the campus site, and therefore not result in new school-age children requiring school services. There would be no effect on schools.

Mitigation: None required.

Cumulative Impacts

Impact C-PUB-1: The CPHP, in combination with past, present, and reasonably foreseeable future projects, would not result in substantial adverse physical impacts associated with the provision of new or physically altered public facilities, need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives. (Less than Significant)

Development under the proposed CPHP, when combined with foreseeable growth in the vicinity of the Parnassus Heights campus site, would increase the demand for fire services, including personnel, equipment, and facilities, and schools. Any necessary fire facilities and/or school expansion would be addressed by project-specific CEQA review that would ensure impacts would be minimized to the extent feasible. As discussed above, the anticipated population increase associated with implementation of the proposed CPHP would neither adversely affect SFFD service standards nor require an increase in SFFD staff and/or equipment that would require the construction of new fire protection facilities. With respect to schools, as described above, the anticipated increase in students in the City, including the anticipated increase in students associated with implementation of the proposed CPHP, could result in the construction of new schools, and activities required to increase capacity at existing schools and/or re-open closed schools. However, the construction of new schools, and construction activities to increase capacity at existing schools and/or re-open old schools are not expected to result in significant environmental impacts as new school sites are likely to consist of underutilized parcels and existing school sites have been previously disturbed and are located in urban environments, and the construction activities would be of limited duration. For these reasons, the contribution of the proposed CPHP to impacts associated with the increase in demand for public services would not be cumulatively considerable and the impact would be less than significant.

Mitigation: None required.

4.13.4 References

California Department of Education (CDE), 2019. Educational Demographics Office. Available online at http://dq.cde.ca.gov/dataquest/. Accessed August 29, 2019.

San Francisco Fire Department (SFFD), 2019a. San Francisco Fire Department. Available at: http://www.sf-fire.org/index.aspx?page=164. Accessed on September 4, 2019a.

SFFD, 2019b. Personal communication with Lt. Jonathan Baxter, Community Affairs and Media Relations Officer, September 6.

San Francisco Police Department (SFPD), 2018. San Francisco Police Department Strategy 1.0, February 8, 2018.

San Francisco Public Utilities Commission, 2018/ *Emergency Firefighting Water System,* Available at: https://sfwater.org/index.aspx?page=467. Accessed November 26, 2019.

San Francisco Unified School District (SFUSD). 2020a, Personal communication with Karissa Yee Findley, Director of School Portfolio Planning, February 25, 2020a.

SFUSD, 2020b. *Demographic Analyses and Enrollment Forecasts San Francisco Unified School District,* prepared by Lapkoff & Gobalet Demographic Research, Inc. for SFUSD, January 2020.

SFUSD, 2020c. SFUSD's March 2019 Enrollment Highlights. Available at: https://public.tableau.com/profile/henry.o.connell7367#!/vizhome/SFUSDsMarch2019EnrollmentHighlights/SFUSDsMarch2019EnrollmentHighlights. Accessed March 20, 2020.

University of California, San Francisco, Police Department (UCPD), 2016. UC Police Department Reports Dashboard, Annual Report 2016.

UCPD, 2019. Police Department Annual Report and Crime Statistics, Program Highlights Available at: Accessed August 29, 2019.

4.14 Recreation

This section assesses the potential for construction and operation of campus development under the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant impacts on recreation. The section includes a description of the existing environmental setting as it relates to recreation and provides a regulatory framework that discusses applicable state and local regulations. This section presents the significance criteria used to evaluate recreation impacts, and the results of the impact assessment, including any significant impacts and associated mitigation measures.

4.14.1 Environmental Setting

Recreational facilities pertinent to this analysis include those owned by UCSF within the campus site, and other public recreational facilities in the vicinity of the Parnassus Heights campus site.

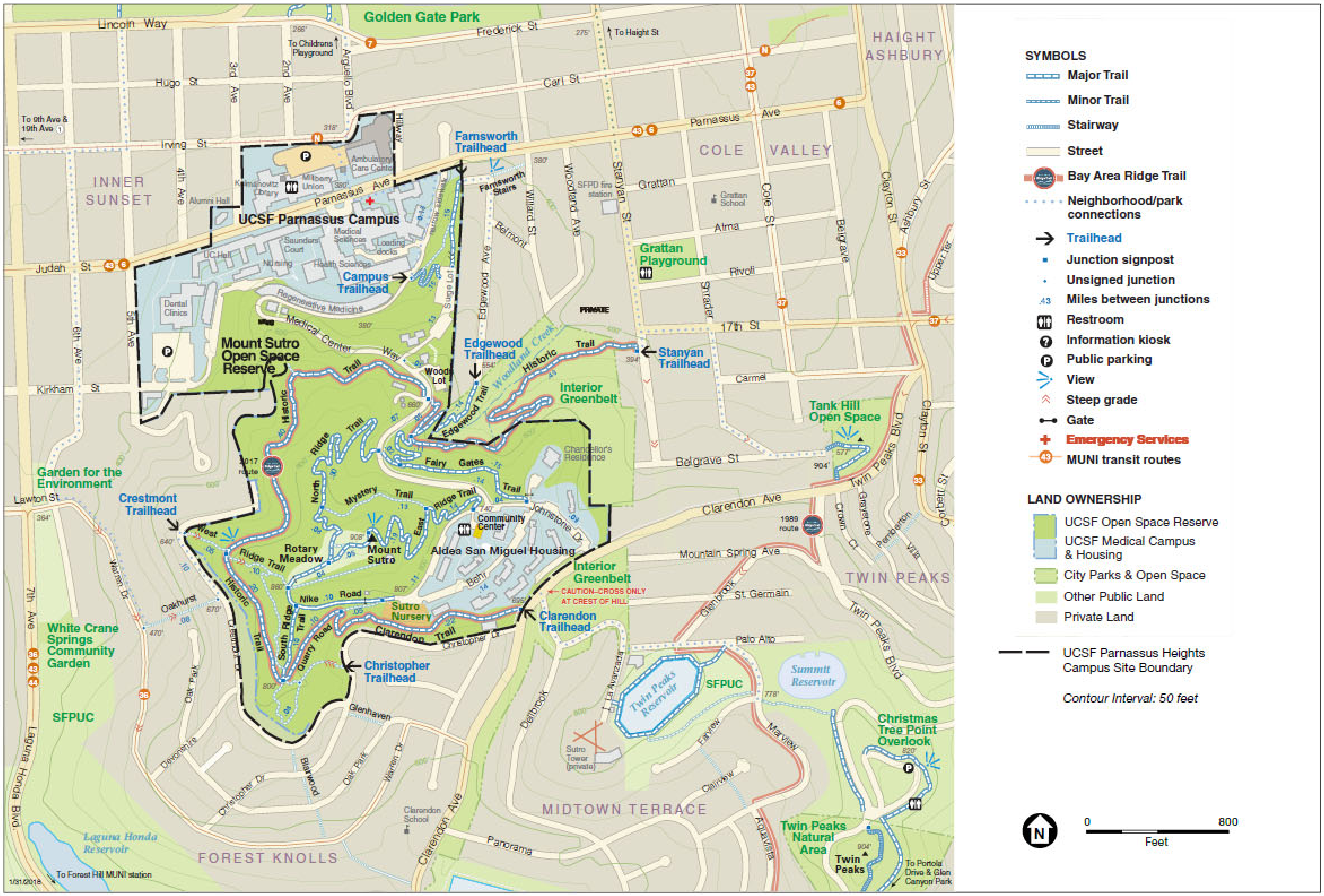
UCSF Recreational Facilities

The Parnassus Heights campus site features three primary areas with open space and recreation opportunities – a number of plazas, Millberry Fitness and Recreation Center, and Mount Sutro Open Space Reserve. The campus has several plazas of various sizes, including Saunders Court, which is considered the primary designed open space on the campus. In addition, the Millberry Fitness and Recreation Center is the primary recreational facility for students, staff, and neighbors of the Parnassus Heights campus site. The Center offers a full gym, indoor pool, spinning studio, and fitness classes.

Mount Sutro Open Space Reserve

The University-owned Mount Sutro Open Space Reserve (Reserve) consists of 61 acres of largely undeveloped forest located within the Parnassus Heights campus site. Within the campus site, the Reserve is generally bound by the UCSF core campus to the north and northwest, and by Aldea Housing complex to the southeast. Several campus site buildings and parking areas are also located along Medical Center Way adjacent to the Reserve. Off-site, urban residential neighborhoods are located to the south, east and west of the Reserve. In addition, the Interior Greenbelt natural area, owned by the City and County of San Francisco, is adjacent to the east side of Reserve. The Reserve is open to the general public.

As illustrated in **Figure 4.14-1**, the Reserve includes a 5-mile network of public, multi-use trails that serve hikers, runners, cyclists, and dogs on leash year-round. Trails in the Reserve include the Historic Trail; the Quarry Road Trail; the Clarendon Trail; the North, South, East and West Ridge Trails; the Fairy Gates Trail; and the Mystery Trail. These trails connect to developed areas of the campus site, including the campus core and the Aldea Housing complex, as well as to the adjacent Interior Greenbelt and street network. Within the Reserve, the Historic Trail coincides with a segment of the Bay Area Ridge Trail. The 2014 LRDP envisioned the development of new trails: the Clarendon Trail (now complete) and the Sunset Trail on the northwest portion of the Reserve, which is in the design phase. Once constructed, the Sunset trail will provide access to the Reserve to west-side residents via Koret Way.



SOURCE: UCSF, Pease Press, 2018; ESA 2019

Figure 4.14-1
Recreational Facilities in Project Vicinity

Several trailheads provide access to and within trails in the Reserve. The Campus Trailhead provides trail access into the Reserve from Medical Center Way, near the UCSF Central Utilities Plant. There are three trailheads along the perimeter of campus site: Clarendon Trailhead, Christopher Trailhead, and Crestmont Trailhead. In addition, the nearby Farnsworth Trailhead connects to the Reserve via Farnworth Lane, and the Edgewood and Stanyan Trailhead connects to the Reserve by way of the Edgewood Trail and Historic Trail, respectively, in the Interior Greenbelt.

Citywide Recreational Facilities

The San Francisco Recreation and Park Department (SFRPD) maintains more than 200 parks, playgrounds, and open spaces throughout the City. The City's park system also includes 15 recreation centers, nine swimming pools, and five golf courses, as well as tennis courts, ball diamonds, athletic fields and basketball courts. In total, the SFRPD currently owns and manages roughly 3,400 acres of parkland and open space within the City limits. Together with other City properties [e.g., San Francisco Public Utilities Commission (SFPUC) lands, Port of San Francisco parks], State-owned open space (e.g., UCSF's Reserve, and the Candlestick Point State Recreation Area), and federal open space (e.g., Ocean Beach, Fort Mason, Fort Funston) within the city, approximately 5,900 acres of recreational resources serve San Francisco (CCSF, 2014; SFRPD, 2019).

The City categorizes publicly accessible open spaces and recreational facilities according to their size and particular amenities as serving the City, district, neighborhood, or sub-neighborhood (a smaller area within an established neighborhood). Several larger open space areas, including Golden Gate Park (see description below), the Lake Merced complex and John McLaren Park, comprise about one half of the total City-owned acreage in recreational use. Unlike neighborhood facilities, these larger facilities provide programs, activities and recreational opportunities that serve the City as a whole.

In addition to the larger open spaces, SFRPD land comprises more than 100 parks and recreational facilities (both outdoor and indoor), which function mainly for neighborhood use. These smaller facilities are primarily used by residents in the immediate surrounding area and are categorized by size and intended service area. District-serving parks are generally larger than 10 acres and have a service area consisting of a three-eighths-mile radius around the park, while neighborhood-serving parks are generally one to 10 acres and have a service area of one-quarter mile. Sub-neighborhood-serving open spaces, often referred to as mini parks, are too small to accommodate athletic facilities and have a service area of one-eighth of a mile.

Recreation Facilities in Campus Site Vicinity

Figure 4.14-1 illustrates recreational facilities in the campus site vicinity. The SFRPD operates and maintains the Interior Greenbelt natural area adjacent to the east side of the Reserve. As indicated above, the Greenbelt park can be accessed via the Edgewood and Stanyan Trailheads; and from Medical Center Way from the Reserve by way of the Edgewood and Historic Trails.

Golden Gate Park, administered by SFRPD, is the City's largest park, comprised of 1,017 acres, and over three miles in length and one-half mile wide. Golden Gate is the third most-visited city park in the United States with up 13 million people annually. Golden Gate Park is home to the De Young Museum, the California Academy of Sciences, the San Francisco Botanical Garden, and Japanese Tea Garden. Historic attractions of the park include the Beach Chalet, Conservatory of Flowers, and the Dutch and Murphy Windmills. Sports and recreational facilities in the park include Kezar Stadium, the Polo Field, and several soccer and baseball fields, tennis courts and other facilities. The park also contains several lakes, including the prominent Stow and Spreckels Lakes.

The SFRPD also operates the 1.5-acre Grattan Playground, located approximately 1,000 feet east of the campus site, and includes a renovated soccer field, two tennis courts and basketball court, a children's play structure, picnic area and clubhouse. The SFRPD also maintains the approximate 3-acre Tank Hill natural area, located approximately one-quarter mile east of the campus site, and known for its panoramic views. In addition, SFRPD operates the 64-acre Twin Peaks natural area located approximately one-half mile southeast of the campus site. Twin Peaks rises to 922 feet in elevation and provides scenic views of the Bay Area.

Approximately 600 feet southwest of the campus site, the SFPUC operates Laguna Honda Park, which includes the Laguna Honda reservoir and forest. The SFPUC also owns land approximately 800 feet southeast of the campus site that is occupied by Twin Peaks Reservoir and Summit Reservoir, and contains walking trails; and further south east, including Christmas Tree Point Overlook.

4.14.2 Regulatory Framework

UCSF

UCSF 2014 LRDP

The UCSF 2014 LRDP identified campus-wide objectives and objectives specific to the Parnassus Heights campus site. The following UCSF 2014 LRDP objectives relate to recreation:

Campus-Wide Objectives

2. **Accommodate UCSF's Growth Through 2035**
   C. Provide additional amenities such as retail, permanent child care facilities, recreation and fitness facilities, improved outdoor areas, and other support services to the extent feasible, to enhance the quality of campus life and the public realm.

Campus Site-Specific Objectives

1. **Parnassus Heights**
   D. Provide additional campus housing and improve campus life amenities including outdoor space.

F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.

UCSF Physical Design Framework

The UCSF *Physical Design Framework* describes the vision for the physical development of UCSF campus sites, serving as the foundation for the planning and designing of future projects. The *Physical Design Framework* includes a goal to expand the open space network at the Parnassus Heights campus site by renovating Saunders Court, creating new open spaces and accommodating a wider variety of activities (UCSF, 2016).

City of San Francisco

UCSF is not subject to local land use regulation whenever using land under its control in furtherance of its educational mission. However, it is UCSF policy to be generally consistent with applicable local plans, policies and regulations to the extent feasible. City plans and regulations that are relevant to the recreation are summarized below.

San Francisco General Plan

The San Francisco General Plan Recreation and Open Space Element contains a number of objectives, including, but not limited to, the following:

Objective 1: Ensure a well-maintained, highly utilized, and integrated open space system.

Objective 2: Increase recreation and open space to meet the long-term needs of the City and Bay Region.

Objective 3: Improve Access and Connectivity to open space.

4.14.3 Impacts and Mitigation Measures

Significance Criteria

Would implementation of the CPHP, including the three Initial Phase projects and Initial Phase improvements:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Approach to Analysis

This analysis focuses on (1) how the implementation of the proposed CPHP, including the three Initial Phase projects and Initial Phase improvements, would affect the demand for both on-campus and off-campus City parks and recreational facilities in the vicinity of the Parnassus

Heights campus site, and (2) the impacts from the construction of recreational facilities under the proposed CPHP. Consideration is given to whether the proposed CPHP includes features that would reduce the demand for off-site recreation and park services (e.g., on-site recreation facilities or land dedication).

Assessment of Impacts to Existing On- and Off-Campus Recreation Facilities

Population growth on the Parnassus Heights campus site would have the potential to directly affect the on-campus recreational facilities by increasing the use of existing facilities. The analyses of impacts to on-campus recreational facilities are based on a programmatic, qualitative analysis of whether the proposed CPHP would address maintenance and expansion of such resources. The severity of impacts to recreational facilities is addressed using measurements such as population increase and condition.

Growth in campus population, especially residential population, would have the potential to result in impacts on nearby off-campus recreation facilities. Analysis of off-campus recreation effects primarily considers such factors as park accessibility, location, maintenance, capacity, and usability.

Assessment of Impacts of Proposed Recreational Facilities

The analysis considers the environmental impacts from the construction of the recreational facilities planned under the CPHP. Impacts of constructing these facilities and, as needed, mitigation measures and other regulatory requirements, are discussed below as well as in other chapters of this Draft EIR.

Approach to Analysis of Initial Phase Projects, including New Hospital, and Initial Phase Improvements

This EIR includes project-level analysis for certain Initial Phase projects anticipated to be completed by about the year 2030; specifically, the Irving Street Arrival, Research and Academic Building (RAB), and initial Aldea Housing Densification; and Initial Phase improvements, as described below. The New Hospital is also an Initial Phase project anticipated to be completed by about the year 2030, but is analyzed at a program level in this EIR within the context of the overall CPHP, and will be analyzed at a project level in a subsequent EIR when more details are available.

Impact Analysis

Impact REC-1: Implementation of the CPHP would not increase the use of existing neighborhood and regional parks or other existing on- and off-campus recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Less than Significant)

CPHP

Implementation of the CPHP would result in an increase in the on-campus daytime population at Parnassus Heights, including students, faculty and staff who commute to the campus site from various other parts of San Francisco and the greater Bay Area, as well as patients and visitors.

These persons are expected to primarily use recreation facilities near their homes, and any use of recreational facilities by this population on or near the Parnassus Heights campus site is expected to be passive in nature and result in minimal increases in demand for these recreation facilities.

Implementation of the CPHP would also result in an increase in the number of UCSF-affiliated persons who would live on the campus site. The development of up to 332 net new units on the Aldea Housing site and 430 new units as part of the West Side Housing project by 2050 would result in an increased demand for recreational facilities by these new residents. These new residents would be likely to use existing recreational facilities on or near the campus site, including the Millberry Recreation Center and the trails within the Reserve. Furthermore, under the CPHP, UCSF would provide a net increase of 3.9 acres of publically accessible open space within the campus core over existing conditions. New outdoor recreational and open space enhancements would include the proposed Millberry Terrace, expanded Saunders Court, an open space connection from 5th Avenue to the Reserve, and a proposed Promenade to the south of the current UC Hall. In addition, under the CPHP, additional indoor recreational opportunities would be created, such as a proposed new wellness center (including a fitness studio and pool). Although some increase in the use of nearby City recreational facilities (e.g., Golden Gate Park, and the Interior Greenbelt) would also likely occur due to the increase in the residential population at the campus site, the increase in usage is unlikely to be so large as to result in significant physical deterioration of the facilities.

As discussed in Chapter 3, *Project Description,* there is the potential for the proposed New Hospital and widened Medical Center Way under the CPHP to result in encroachment on the Reserve. UCSF proposes to replace any loss of Reserve acreage resulting from new development under the CPHP by creating new Reserve acreage elsewhere within the campus site in an amount equal to or greater than that land lost. Furthermore, under the CPHP, UCSF would maintain Reserve trail access to and from the Farnsworth Lane trailhead.

For these reasons, implementation of the proposed CPHP would not increase the use of existing on-campus recreational facilities and off-campus neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of any of the facilities would occur or be accelerated, and this impact is considered less than significant.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project mainly involves modifications to the existing Medical Building 1 to improve circulation space, and would not substantially increase the amount of building space or the population on the campus site. The project would not increase the demand for recreational facilities such that substantial physical deterioration of any of the facilities would occur or be accelerated. There would be no effect.

Mitigation: None required.

Research and Academic Building

The proposed Research and Academic building (RAB) would increase the campus's daytime population. As noted for the CPHP as a whole, the increased daytime population associated with the RAB is unlikely to result in a substantial demand for recreational facilities. Furthermore, the demand would be served by existing and expanded on-campus facilities, and the use of off-campus recreational facilities would increase minimally due to the project. The project would not increase the demand for recreational facilities such that substantial physical deterioration of any of the facilities would occur or be accelerated. The impact would be less than significant.

Mitigation: None required.

Initial Aldea Housing Densification

During the initial phase of housing densification at the Aldea Housing complex, three existing 3-story housing structures would be replaced with three 8-story housing structures, and one 5-story housing structure. The housing densification project would increase the campus's residential population. As discussed above, there are substantial existing on-campus recreational facilities, along with new and expanded on-campus recreational opportunities that would occur under the CPHP. As noted for the CPHP as a whole, although some increase in the use of nearby City recreational facilities would be associated with new residents, including from the initial Aldea Housing Densification project, the demand for recreational facilities would not increase to a level such that substantial physical deterioration of any of the facilities would occur or be accelerated. The impact would be less than significant.

Mitigation: None required.

Initial Phase Improvements

As described in Chapter 3, *Project Description*, the Initial Phase improvements would include various Initial Phase utility improvements, implementation of the Parnassus Avenue Streetscape Plan, renovation of certain existing buildings, and installation of miscellaneous community investments in the public realm. The Initial Phase improvements would not increase population, and consequently, would not increase the demand for recreational facilities such that substantial physical deterioration of any of the facilities would occur or be accelerated. There would be no effect.

Mitigation: None required.

Impact REC-2: The CPHP includes new recreational facilities, the construction of which would not have an adverse impact on the environment with mitigation. (Less than Significant)

CPHP

As discussed above, the CPHP would result in construction of various new recreational facilities at the campus site, including a new wellness center to be constructed in the Millberry Union, and expansion of open space areas within the campus core, including an expanded Saunders Court, an east-west promenade from Saunders Court to 4th Avenue, an open space connection from 5th Avenue to the Reserve, and a terrace on the roof of the new Millberry Union. Compliance with mitigation measures and other construction-related regulatory requirements discussed in other sections of this Draft EIR, including Section 4.2, *Air Quality*; Section 4.3, *Biological Resources*; Section 4.6, *Geology and Soils,*; Section 4.8, *Hazards and Hazardous Materials*; Section 4.9, *Hydrology and Water Quality*; Section 4.11, *Noise and Vibration*; and Section 4.15, *Transportation,* would reduce construction-related effects of new recreational facilities to less than significant levels.

Mitigation: None required.

Irving Street Arrival

The Irving Street Arrival project would not involve construction of any recreational facilities. There would be no effect related to construction of recreational facilities.

Mitigation: None required.

Research and Academic Building

The RAB project would not involve construction of any recreational facilities. There would be no effect related to construction of recreational facilities.

Mitigation: None required.

Initial Aldea Housing Densification

The Aldea Housing Densification project would not involve construction of any recreational facilities. There would be no effect related to construction of recreational facilities.

Mitigation: None required.

Initial Phase Improvements

As described in Chapter 3, *Project Description*, the Initial Phase improvements would include, among other improvements, installation of miscellaneous community investments in the public realm, which are not yet defined. To the extent any Initial Phase improvements included recreational-related features, compliance with mitigation measures and other construction-related regulatory requirements discussed in other sections of this Draft EIR, including Section 4.2, *Air Quality*; Section 4.3, *Biological Resources*; Section 4.6, *Geology and Soils,*; Section 4.8, *Hazards and Hazardous Materials*; Section 4.9, *Hydrology and Water Quality*; Section 4.11, *Noise and Vibration*; and Section 4.15, *Transportation,* would reduce construction-related effects of new recreational facilities to less than significant levels.

Mitigation: None required.

Cumulative Impacts

Impact C-REC-1: The CPHP, in combination with past, present, and reasonably foreseeable future projects, would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Less than Significant)

Development under the proposed CPHP, when combined with cumulative growth in the vicinity of the Parnassus Heights campus site, could increase the demand for recreation facilities. However, this increased demand would not cumulatively result in the substantial physical deterioration of such facilities. As discussed above, there are substantial existing recreational opportunities on the campus site; and recreational improvements being implemented as part of the 2014 LRDP (e.g., the Sunset Trail). Under the CPHP, recreational facilities within the campus core would be expanded. Many of these existing and expanded recreational facilities would be publically accessible and used not only by the CPHP population, but by cumulative increases in population from the neighboring community. The CPHP would not eliminate any access to existing campus site recreational facilities, or eliminate connection to adjacent recreational space. Furthermore, the neighborhoods surrounding the campus site are largely fully built out under existing zoning, and as a result, development increasing demand on parks and recreational facilities is expected to be minimal. It is expected that continued long-range planning by City agencies, including, but not limited to, SFRPD, would ensure City-owned recreational facilities in the campus site vicinity would continue to be maintained and improved as needed to accommodate anticipated cumulative increases in the citywide population.

Therefore, development under the proposed CPHP, when combined with cumulative growth in the vicinity of the Parnassus Heights campus site, would not result in a significant cumulative impact to recreation.

Mitigation: None required.

4.14.4 References

City and County of San Francisco (CCSF), San Francisco General Plan, Recreation & Open Space Element, April 2014.

San Francisco Recreation and Park Department (SFRPD), 2019. Who We Are. Available at: . Accessed December 1, 2019.

University of California, San Francisco (UCSF), 2016. *UCSF Physical Design Framework*. Updated July 2016.

4.15 Transportation

This section describes and evaluates the potential for campus development under the Comprehensive Parnassus Heights Plan (CPHP or Plan), including the three Initial Phase projects and Initial Phase improvements, to result in significant transportation impacts. The section presents the regional and local transportation setting, provides the transportation regulatory framework, identifies criteria used to determine impact significance, and provides an analysis of the potential transportation impacts associated with the implementation of the CPHP as well as identifies feasible mitigation measures that could mitigate any potentially significant impacts.

4.15.1 Environmental Setting

This section describes the existing transportation and circulation setting: the existing regional roadway network, regional transit service, the local roadway network, local transit service, the UCSF shuttle system, existing UCSF transportation demand management programs, pedestrian conditions, bicycle conditions, loading conditions, emergency vehicle access, vehicle miles traveled, and parking conditions. **Figure 4.15-1** shows the study area and campus site.

Regional Setting

Regional Roadway Network

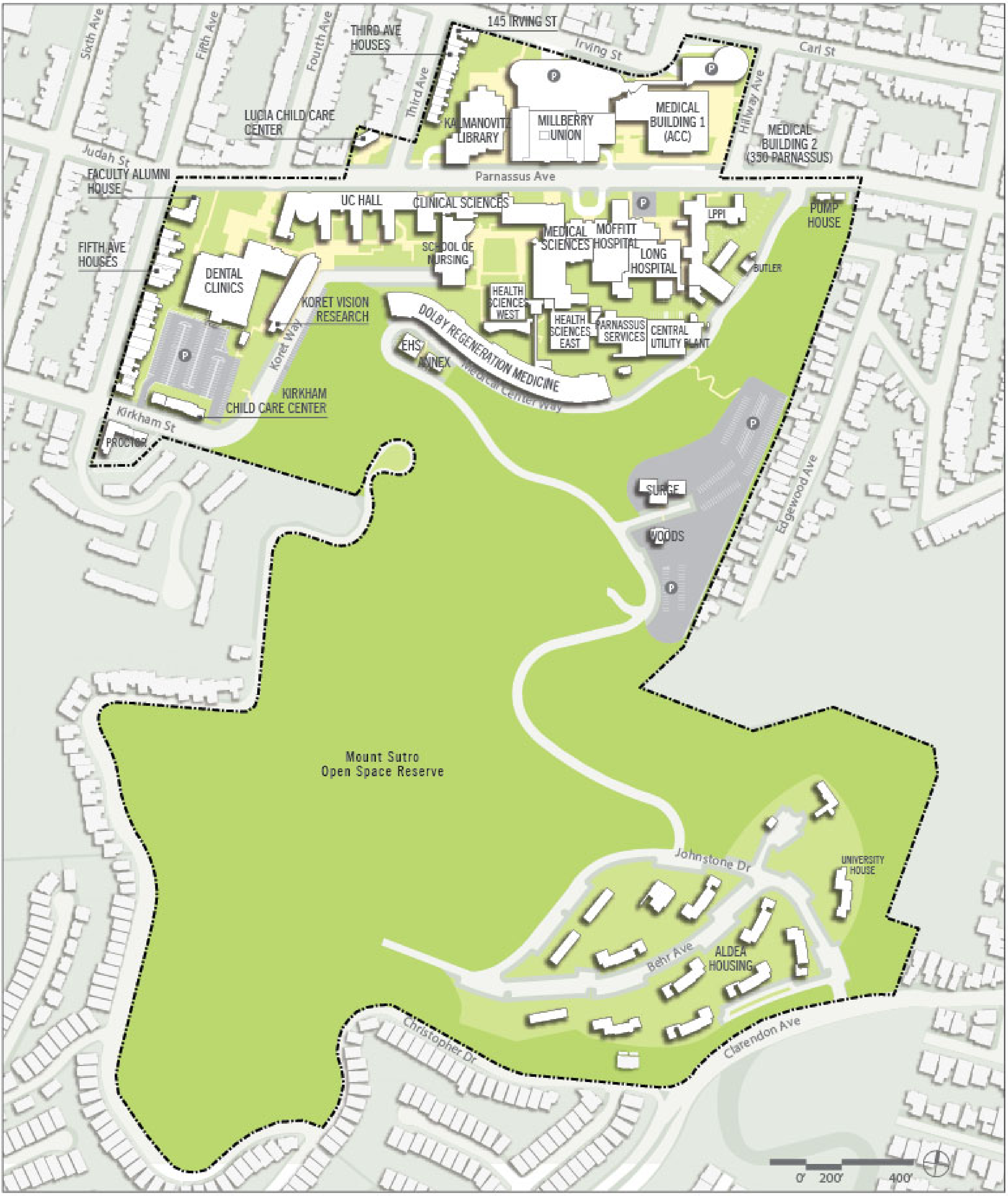
Regional roadway access to the UCSF Parnassus Heights campus site is provided by several major regional freeways and roadways, as discussed below.

Interstate 80 (I-80) is located approximately three miles east of the campus site. I-80 connects San Francisco to the East Bay and other points to the east of the City via the San Francisco-Oakland Bay Bridge.

U.S. Highway 101 (U.S. 101) is located approximately two miles east of the campus site. U.S. 101 connects San Francisco with the Peninsula and the South Bay to the south, and with the North Bay to the north via the Golden Gate Bridge. U.S. 101 connects to I-80 in the South of Market (SoMa) neighborhood of San Francisco. Within the northern part of San Francisco, U.S. 101 operates on surface streets (i.e., Van Ness Avenue and Lombard Street).

State Highway 1 (19th Avenue) is located approximately one mile west of the campus site. 19th Avenue connects San Francisco to the North Bay via the Golden Gate Bridge and to the South Bay via a connection to Interstate 280 (I-280) south of the campus site. Within the study area, 19th Avenue has six lanes, with left turns prohibited at most intersections.

Interstate 280 (I-280) is located approximately two miles east of the campus site. I-280 connects San Francisco to the South Bay with connections to 19th Avenue, the Mission Bay district and SoMa. I-280 connects to U.S. 101 south of Mission Bay.



SOURCE: Fehr & Peers, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.15-1
Parnassus Heights Campus Site

SFO/D190291.00 - UCSF CPHP EIR/2 Graphics/Illustrator

Regional Transit Service

Golden Gate Transit. The Golden Gate Bridge, Highway, and Transportation District operates Golden Gate Transit (GGT), which provides bus and ferry service between the North Bay (Marin and Sonoma Counties) and San Francisco. GGT operates 22 commuter bus routes, nine basic bus routes, and 16 ferry feeder bus routes in San Francisco. Bus routes operate at headways of 15 to 90 minutes depending on time and day of week and bus type. GGT also operates ferry service between the North Bay and San Francisco, connecting Larkspur and Sausalito with the Ferry Building during the morning and evening commute periods. GGT riders need to transfer to San Francisco Municipal Railway (Muni) to access the campus site.

Alameda-Contra Costa County Transit District (AC Transit). AC Transit operates bus service in western Alameda and Contra Costa Counties, as well as routes to the City of San Francisco and San Mateo County. AC Transit operates 33 “Transbay” bus routes between the East Bay and the Salesforce Transit Center, located on Beale Street between Mission Street and Howard Street. The Salesforce Transit Center is accessible from the campus site via Muni. The majority of Transbay service is provided only during commute periods in the peak direction of travel, with headways of 15 to 20 minutes. The peak direction of service is into San Francisco during the AM peak period and out of San Francisco during the PM peak period. All-day service is provided on a few lines, with headways of approximately 30 minutes. AC Transit riders need to transfer to Muni to access the campus site.

San Mateo County Transit District (SamTrans). SamTrans operates bus and rail service in San Mateo County. A few SamTrans routes also serve the Salesforce Transit Center in downtown San Francisco, including Routes 292, 397, and 398. Route 292 makes San Francisco stops along Potrero Avenue and Mission Street throughout the day. AM peak hour headways are between 10 and 15 minutes, and PM peak hour headways are 20 minutes. Routes 397 and 398 run along Mission Street in San Francisco but stop only at the Salesforce Transit Center. Route 397 is a late-night service route with headways of one hour. Route 398 operates during peak periods with one-hour headways. SamTrans riders need to transfer to Muni or UCSF shuttle to access the campus site.

Bay Area Rapid Transit (BART). BART provides regional commuter rail service between San Francisco and the East Bay (Pittsburg/Bay Point, Richmond, Dublin/Pleasanton and Fremont), as well as between San Francisco and San Mateo County (SFO Airport and Millbrae). Weekday hours of operation are currently between 5:00 AM and midnight. During the weekday PM peak period, headways are 5 to 15 minutes along each line. Within San Francisco, BART operates underground along Market Street to Civic Center Station where it turns south through the Mission District towards Daly City. The closest BART station to the campus site is the Civic Center BART station, which is accessible from the campus site via Muni.

Caltrain. Caltrain provides passenger rail service on the Peninsula between San Francisco and Downtown San Jose with several stops in San Mateo County and Santa Clara County. Limited service is available south of San Jose. Caltrain service headways during the AM and PM peak periods are 10 to 60 minutes, depending on the type of train. The peak direction of service is southbound during the AM peak period and northbound during the PM peak period. Caltrain service terminates at the San Francisco Station at Fourth and King Streets (Fourth/King station). The Fourth/King station is served by local, limited, and express “Baby Bullet” trains that are accessible from the campus site via Muni.

Caltrain is in the process of implementing a Modernization Program that will electrify the railway. The electrification project is scheduled to be complete by 2022 and will upgrade rail performance, improve operational efficiency, and result in higher capacity. For example, whereas today Caltrain operates 10 trains per hour during peak periods, electrification will support an increase to 12 trains per hour. Additionally, Caltrain is anticipating a “blended system,” with California High Speed Rail trains running alongside Caltrain on the same tracks by 2040. Electrification of Caltrain (and the associated improved travel times and frequencies), as well as the introduction of High Speed Rail, may improve UCSF’s regional transit access.

Local Setting

Local Roadway Network

With Golden Gate Park to the north and Mount Sutro to the south, the roadways used to access the campus site are primarily via east-west corridors – Parnassus Avenue, Judah Street, Irving Street-Carl Street, Lincoln Way, and Kirkham Street. Primary north-south routes to the campus site include Stanyan Street, Arguello Boulevard, Seventh Avenue, and Second Avenue through Fifth Avenue. The primary vehicular entrances to parking and loading areas for the campus site are located at the intersections of Second Avenue/Irving Street, Arguello Boulevard/Carl Street-Irving Street, along Parnassus Avenue, and at Fifth Avenue/Kirkham Street. Local access to the campus site is provided by an urban street grid network. Key local roadways through the campus site are discussed below.

The local road network serving the campus site consists primarily of two-lane roadways with on-street parking provided on both sides of the streets in most areas, as follows:

- **Kirkham Street** runs between the campus site to La Playa Street in the west. East of Fifth Avenue, Kirkham Street becomes Koret Way (a campus street) and provides access to the School of Dentistry and School of Nursing buildings. West of Sixth Avenue, Kirkham Street has Class II bicycle lanes in both directions.

- **Carl Street/Irving Street** extends from Clayton Street to 48th Avenue. The City classifies this roadway as a Primary Transit Street (transit-oriented) east of Ninth Avenue. In the vicinity of the campus site, the N – Judah light rail line operates along the roadway between Cole Street and Ninth Avenue. The street provides exclusive turn pockets for vehicles to enter the UCSF parking garage at the Second Avenue/Irving Street intersection.

- **Hugo Street** runs between Arguello Boulevard and Seventh Avenue. Between Seventh Avenue and Third Avenue, Hugo Street is designated as a Class III bicycle route.

- **Willard Street** runs from Fredrick Street to Woodland Avenue.

- **Medical Center Way**, a campus street, runs from Parnassus Avenue to Johnstone Drive through the Mount Sutro Open Space Reserve.

- **Hillway Avenue** runs between Parnassus Avenue and Carl Street.

- **Arguello Boulevard** runs from Kezar Drive to Carl Street.

- **Second Avenue** runs from Lincoln Way to Irving Street, with the southern end of the street providing direct access to a large UCSF public parking garage with a long-term bicycle parking facility.

- **Third Avenue** runs between Lincoln Way and Parnassus Avenue. Between Hugo Street and Lincoln Way, Third Avenue is a designated Class III bicycle route. All northbound traffic on Third Avenue must turn right at Lincoln Way.

- **Fourth Avenue** runs between Lincoln Way and Parnassus Avenue. All northbound traffic on Fourth Avenue must turn right at Lincoln Way.

- **Fifth Avenue** runs between Lincoln Way and its terminus south of Kirkham Street. Fifth Avenue provides full access (i.e., northbound traffic can turn left and right) at Lincoln Way.

- **Sixth Avenue** runs between Lincoln Way and its terminus south of Kirkham Street. Sixth Avenue is designated as a bicycle route between Hugo Street and Kirkham Street and has a southbound Class II bicycle lane and a northbound Class III bicycle route (with shared-lane markings [“sharrows”]).

- **Eighth Avenue** runs between Lincoln Way and its southern terminus at Pacheco Street. The 66 Quintara bus line operates along Eighth Avenue between Judah Street and Lawton Street in the northbound direction only.

The roadway exceptions to the two-lane cross section are as follows:

- **Parnassus Avenue/Judah Street** is a two- to three-lane roadway that extends from Clayton Street to 48th Avenue. The City classifies this roadway as a Secondary Transit Street east of Ninth Avenue (in the vicinity of the campus site) and a Primary Transit Street (Transit-Oriented) west of Ninth Avenue. The 6 Parnassus and 43 Masonic bus lines operate on this street. A two-way left-turn lane extends from Stanyan Street to the Moffitt-Long Hospital. Access to the Millberry Union Garage is across from the Moffitt/Long Hospital Drop-off/Pick-up area; two signalized crosswalks facilitate heavy pedestrian volumes across the street in the same location. Parnassus Avenue/Judah Street is also designated as a Class III bicycle route east of Sixth Avenue. Class III bicycle routes employ “sharrows.”

- **Lincoln Way/Frederick Street** is a two- to four-lane Secondary Transit Street that forms the southern boundary of Golden Gate Park. At Third Avenue, Lincoln Way merges with Kezar Drive and is a main thoroughfare between the Sunset District and downtown. The 7 Haight-Noriega bus line uses the entirety of Lincoln Way and Frederick Street to travel to Stanyan Street, while the 7X Noriega Express uses Lincoln Way to merge onto Kezar Drive in order to get to the Fell-Oak Street one-way couplet.

- **Kezar Drive** is a two- to four-lane east-west Major Arterial Street north of Parnassus Avenue that provides the major connection from the campus site to the Fell-Oak Street one-way couplet. Kezar Drive has a Class I bicycle path facility. The 7X Noriega Express uses Kezar Drive to travel from Lincoln Way to Oak Street.

- **Stanyan Street** is a Secondary Transit Street from Geary Boulevard to Belgrave Avenue. It forms the eastern boundary of Golden Gate Park (excluding the Panhandle section of the park). In the vicinity of the campus site (north of Frederick Street), it is a four-lane roadway; south of Fredrick Street, it is a two-lane street. The 7 Haight-Noriega bus line operates along Stanyan Street north of Frederick Street.

- **Seventh Avenue** is a Secondary Transit Street, which provides access to Golden Gate Park and becomes Laguna Honda Boulevard to the south of the campus site. It has one northbound and two southbound lanes in the vicinity of the campus site. Seventh Avenue is designated as a Class III bicycle facility between Lincoln Way and Judah Street and as a Class II bicycle lane south of Judah Street. The 36 Teresita, 43 Masonic, and 44 O'Shaughnessy bus lines operate on Seventh Avenue south of Lawton Street.

- **Ninth Avenue** is a Secondary Transit Street, which provides access to Golden Gate Park and the Sunset District. It has one northbound and two southbound lanes in the vicinity of the campus site. The N-Judah light rail line operates on Ninth Avenue between Irving and Judah Streets. The 43 Masonic and 66 Quintara bus lines operate along Ninth Avenue between Judah Street and Lawton Street, while the 44-O'Shaughnessy line runs between Golden Gate Park and Lawton Street.

Parnassus Avenue Traffic Volumes

UCSF committed to monitoring the number and classification (vehicle type, e.g., private passenger vehicle, taxi, parcel/mail delivery, etc.) of vehicles at key gateways of the campus site every two years as part of the Measurement and Accountability section (4.7) of the 2014 Long Range Development Plan (LRDP). Specifically, monitoring takes the form of collecting two days of vehicle turning movement and classification observations at three "gateway" intersections (Fifth Avenue and Kirkham Street, Fifth Avenue and Parnassus Avenue, and Medical Center Way and Parnassus Avenue), first in 2013 and subsequently every two years beginning in 2016. These traffic volumes also account for through traffic (i.e. vehicles that are passing through the campus site on Parnassus Avenue without stopping at the Parnassus campus site). These gateway intersection counts show that total vehicle volumes increased by approximately four percent between 2013 and 2018, and seven percent between 2016 and 2018 (due to a slight decrease observed between 2013 and 2016). The large majority of vehicles observed at the gateways are private passenger vehicles. Non-passenger vehicles are mainly UCSF shuttles and Muni buses at the Parnassus Avenue intersections.

Local Transit Service

The campus site is well-served by public transit; both local and regional. Local service is provided by the Muni bus and light rail lines, which provide transit service to the campus site and throughout San Francisco and can be used to access regional transit operators. As described previously in Regional Transit Service, service to and from the East Bay is provided by BART, AC Transit and ferries; service to and from the North Bay is provided by GGT buses and ferries; service to and from the Peninsula and South Bay is provided by SamTrans, BART, and Caltrain. As described below in UCSF Shuttle System, UCSF supplements Muni transit service with its own shuttle system that provides direct connections to UCSF-operated or affiliated facilities throughout San Francisco. In many cases, these shuttles provide a direct transit alternative between two campus sites that would otherwise require a transfer between two or more Muni routes. Based on the 2018 UCSF Employee Commute Survey, approximately 32 percent of employees travel to or from the campus site use public transit, while another 10 percent rely on UCSF shuttles.

Muni routes in the study area and their characteristics as of August 2019 are summarized in **Table 4.15-1** and presented in **Figure 4.15-2**. This transportation analysis uses a 0.25-mile radius as the walking distance for transit access.

The San Francisco Municipal Transportation Agency (SFMTA) "Muni Forward" program aims to improve reliability, reduce travel times, provide more frequent service, and update Muni bus routes and rail lines to better match current travel patterns. Informed by the Transit Effectiveness Project, Muni Forward proposals include new routes and route realignments, more service on busy routes, and elimination or consolidation of certain routes or route segments with low ridership. There are several Muni Forward service changes to routes in the campus site area that, as of August 2019, have been implemented or approved by the SFMTA Board of Directors.[1] Note that the Muni Forward program does not include any changes to the 36 – Teresita bus route.

- **6 – Haight/Parnassus:** AM and PM peak frequencies will be reduced from 10 minutes to 12 minutes.[2] These changes have not yet been implemented and are therefore not reflected in Table 4.15-1.

- **7 – Haight/Noriega (f/k/a 71 Haight/Noriega):** The 71 Haight/Noriega route was renamed 7 Haight/Noriega line. Additionally, AM and PM peak frequencies will be increased from 10 minutes to 7.5 minutes, and midday frequencies will be increased from 12 minutes to 8 minutes.[2] The peak frequency changes have not yet been implemented and are therefore not reflected in Table 4.15-1.

- **43 – Masonic:** AM peak frequency was increased from 10 minutes to eight minutes, and PM peak frequency was increased from 12 minutes to 10 minutes.[3] These changes have been partially implemented (frequencies have increased to nine and 11 minutes, respectively) and are therefore not fully reflected in Table 4.15-1.

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[1] San Francisco Municipal Transportation Agency (SFMTA), Muni Forward, 2019, https://www.sfmta.com/projects/muni-forward, accessed August 2019.

[2] San Francisco Municipal Transportation Agency (SFMTA), 7 Haight Noriega Rapid Project, 2019, https://www.sfmta.com/projects/7-haight-noriega-rapid-project, accessed August 2019.

[3] San Francisco Municipal Transportation Agency (SFMTA), Muni Forward, 2019, https://www.sfmta.com/projects/muni-forward, accessed August 2019.

- **N – Judah:** An increase in frequencies during the AM peak from 7 minutes to 5.5 minutes and during the PM peak from 8 minutes to 6 minutes has been approved. However, these changes have not yet been implemented and are therefore not reflected in **Table 4.15-1**.[4]

TABLE 4.15-1
LOCAL MUNI OPERATIONS

Route	AM Peak Weekday Headways (7:00-9:00 AM)[1]	PM Peak Weekday Headways (4:00-6:00 PM)[1]	Hours of Operation	Neighborhoods Served by Route	Nearest Stop Location	Distance to Campus Site (feet)
6 – Haight/ Parnassus	10	11	6:20 AM – 12:20 AM	Financial District, Golden Gate Heights	Several stops on Parnassus between Hillway Avenue and Fifth Avenue	0
43 – Masonic[2]	9	11	5:15 AM – 12:30 AM	Marina District, The Excelsior	Several stops on Parnassus between Hillway Avenue and Fifth Avenue	0
7 – Haight/ Noriega	10	11	6:15 AM – 12:10 AM	Financial District, Haight-Ashbury, Sunset District	Frederick Street and Arguello Boulevard	600
36 – Teresita	30	30	6:15 AM – 10:50 PM	Glen Park, Forest Knolls, Noe Valley	Oak Park Drive & Forest Knolls Drive	1,400 (to Aldea housing complex)
N – Judah	7	9	5:00 AM – 1:00 AM	Financial District, Sunset District	Irving Street and Second Avenue	0

NOTES:
[1] Headway in minutes.
[2] For this route, there is a slight discrepancy between the peak hour frequencies for the existing schedules posted on the SFMTA website and the service changes approved as a part of Muni Forward.

SOURCE: SFMTA, July 2019; prepared by Fehr & Peers, 2020.

At the time of publication of the Draft EIR, Muni was operating reduced transit service under a COVID-19 Core Service Plan in response to the COVID-19 pandemic and the “shelter-in-place” order in San Francisco.[5] The timing and degree to which transit service is reinstated in San Francisco is uncertain at present. The SFMTA has developed a Transportation Recovery Plan, which represents a guiding framework for expanding transportation services and operations as the

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[4] San Francisco Municipal Transportation Agency (SFMTA), N Judah Rapid Project, 2019, https://www.sfmta.com/projects/n-judah-rapid-project, accessed August 2019.

[5] San Francisco Municipal Transportation Agency (SFMTA), COVID-19 Muni Core Service Plan, https://www.sfmta.com/travel-updates/covid-19-muni-core-service-plan

SOURCE: Fehr & Peers, 2020

Figure 4.15-2
Parnassus Campus Existing Transit Network

"shelter-in-place" order is modified and demand for travel increases.[6] SFMTA generally evaluates key factors such as annual ridership, vehicle availability, and resource availability – and relies on regularly-collected passenger data – to inform their transit service planning decisions. This approach allows SFMTA the flexibility and responsiveness to provide the most efficient transit service possible.

UCSF Shuttle System

The core element of UCSF's Transportation Demand Management (TDM) plan is the shuttle service that UCSF operates throughout San Francisco. The shuttle system fleet (currently 63 shuttles) provides service between transit facilities, remote parking lots, the various UCSF campus sites, and UCSF-affiliated hospitals / medical centers within the City. The primary shuttle routes serve the Parnassus Heights, Mission Bay, Mission Center, Zuckerberg San Francisco General Hospital, Mount Zion, and Laurel Heights campus sites. As of 2019, UCSF Shuttles transport 2.5 million passengers per year. Service includes 11 fixed-route lines and three on-demand services (one daytime, and two evening services). Fixed-route shuttle headways are generally between 15 and 25 minutes, and most routes operate between 6:00 AM and 9:00 PM, Monday through Friday.

The two on-demand evening services operate both weekday and weekend nights. Riders can request on-demand service within a pre-defined border around the Parnassus Heights campus site by calling UCSF Police Department (UCPD) dispatch or via the online portal. All shuttle buses are equipped with bike racks, and many are equipped with Wi-Fi. The service is free for UCSF faculty, staff, students, patients, and visitors.

Shuttles to and from the Parnassus Heights campus site (Blue, Gold, Grey, Lime, Orange, Pink, VA-Parnassus, and Bronze) stop at shuttle zones along the north side of Parnassus Avenue, between Third Avenue and the Library, and on the south side of Parnassus Avenue, just west of UC Hall, outside the Dental Clinics plaza at Fourth Avenue, and also east of the Langley Porter Psychiatric Institute (LPPI). These stops are designated by UCSF Transportation Services and reviewed/approved by SFMTA. Existing shuttle routes and stops in the vicinity of Parnassus Heights campus site are shown on **Figure 4.15-3**.

UCSF regularly monitors the capacity utilization of its routes via a combination of boarding audits, driver and rider feedback, program analysis from external consultants, stop audits, and consultation with UCSF Campus Planning. UCSF's shuttle system is a key strategy in providing efficient inter-campus travel. As part of this service, UCSF has made and will continue to make periodic minor operational changes to improve operations, expand service to accommodate new facilities or to respond to specific community concerns.

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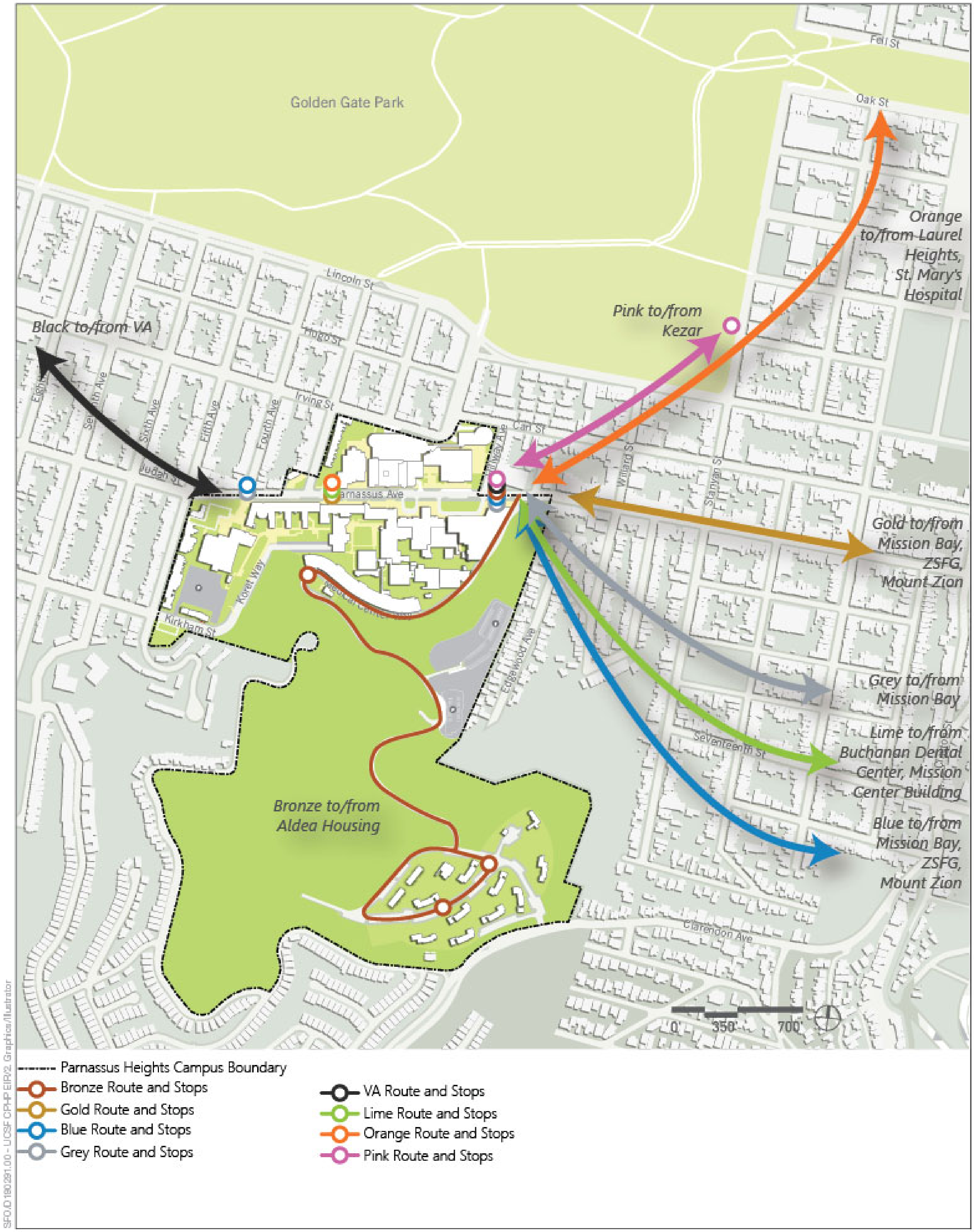
[6] San Francisco Municipal Transportation Agency (SFMTA), Transportation Recovery Plan, https://www.sfmta.com/projects/transportation-recovery-plan



SOURCE: Fehr & Peers, 2020

Figure 4.15-3
UCSF Parnassus Campus Shuttle Routes and Stops

The seated per-vehicle capacity of the shuttle buses (Blue, Gold, Grey, Lime, Orange, Pink, VA-Parnassus, and Bronze lines) varies from 22 to 30 persons or up to 40 persons on the New Electric Buses. **Figure 4.15-4** shows the average daily boardings for the UCSF shuttle system by route for December 2019, and presents all UCSF shuttle routes, including those that serve other campus sites and the eastbound and westbound on-demand shuttles. The Grey, Blue, and Gold lines, which represent some of the highest ridership routes, serve the Parnassus Heights campus site.

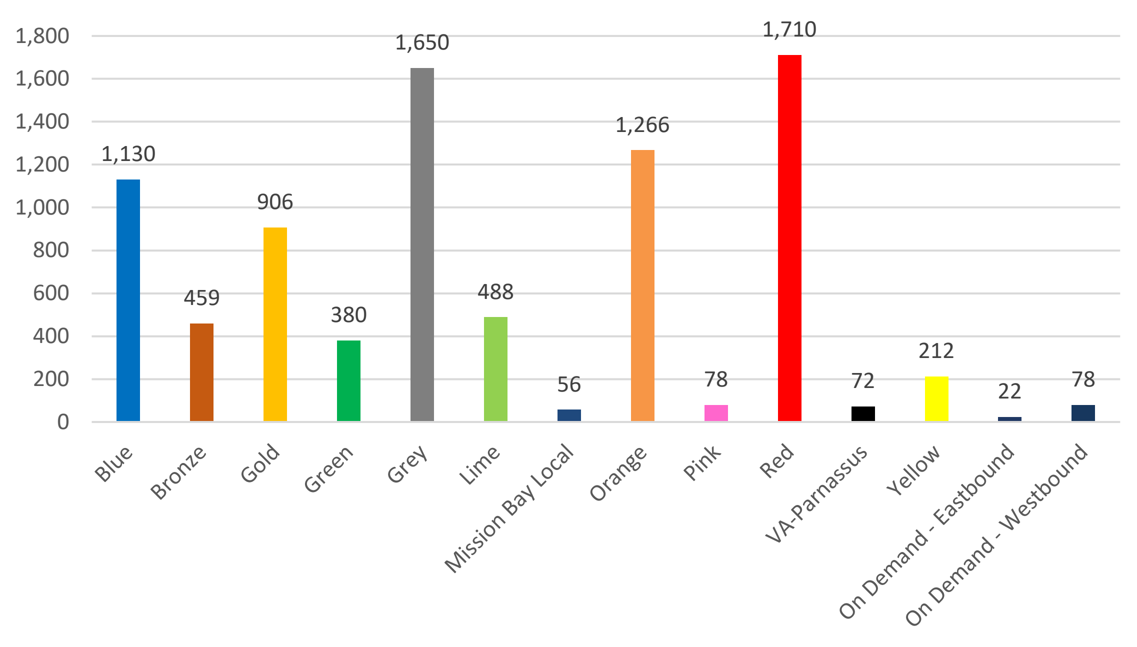


Figure 4.15-4
UCSF Shuttle Average Daily Boardings (December 2019)

UCSF Transportation Demand Management Plan (TDM)

There are many factors that determine how people travel to/from work, including home location, work shifts, access to transit, travel incentives and disincentives (e.g., how convenient or costly it is to park), or other obligations before or after work (e.g., childcare drop-off or pick-up). A TDM program is a set of policies and programs that include incentives, information, and education to encourage employees to commute to work by modes other than driving alone. The UCSF TDM program includes strategies that emphasize alternative commuting options, such as public transit, UCSF's shuttle service, biking, walking, and carpooling/vanpooling. The key elements of the UCSF TDM program are summarized in **Table 4.15-2**.

In particular, UCSF's priced permit parking, carpool/vanpool, and telecommuting programs and policies are effective TDM strategies that help reduce the number of drive-alone trips to/from the UCSF campus sites. Employee parking permits are limited by the fixed supply of permits available and by permit eligibility requirements (only certain employees are eligible to apply for parking permits), and a waitlist for permits exists. Additionally, permits are priced according to

TABLE 4.15-2
EXISTING UCSF TDM PROGRAM ELEMENTS

TDM Strategy	Description
Annual Transportation Survey	Annual employee and student survey to learn more about travel to/from, and within UCSF campus sites.
Online Commute Planning Tool	MyCommute is an online commute planning tool that helps find transit options that are custom tailored, including carpool, vanpool, public transit, biking, and walking.
Bicycle Parking	Short-term bicycle racks are provided on the campus site, with capacity generally exceeding demand. Long-term bicycle parking is provided in the Millberry Union garage.
Showers and Lockers	Showers and lockers are provided at various campus sites, which can be used by bicyclists. The Bike To Work Shower Program, in partnership with the Fitness & Recreation Centers at UCSF, provides access to the locker room and showers for a small fee.
Bicycle Permits	Free bicycle permits are provided, allowing free access to enclosed bicycle parking facilities; bike fix-it stations available at the Parnassus campus site; discounted SF Bike Coalition membership.
Carshare	Scoot mopeds and Zipcars are available at the campus site for rental as an alternative to owning or driving a personal car to campus.
Shuttle	UCSF shuttle system serving all main campus sites.
Priced Permit Parking	On-campus parking supply is limited and is prioritized for patient and visitor parking by restricting the number of parking permits that are issued per year to eligible employees based on a prioritization hierarchy. UCSF offers over 30 varieties of parking permits to employees, students and departments, which are priced at or near market rate. The price of individual permits range from $30 to $250 per month as of March 2020. Parking permit prices will increase by 32.5 percent on July 1st, 2020 as a result of a new 25 percent parking tax collected by the City of San Francisco (CCSF) and a 7.5 percent annual permit price increase collected by UCSF to reflect increasing costs. UCSF also offers single-day daytime parking permit for commuters who use alternative commuting options. These single-day “D” permits are available to UCSF faculty, staff, and students who commute to UCSF by an alternative transportation mode at least 4 of 5 days per week or 80% of their total commute to UCSF.
Limited Parking Supply	The campus parking supply is limited, and prioritized for patients and visitors, by limiting employee campus parking eligibility.
Priced Visitor Parking	UCSF offers short-term visitor parking. Both hourly and daily rates are available.
EV & Green Vehicles	Electric Vehicle Charging Stations and priority parking spaces are available for Green Vehicles.
Pre-Tax Commuter Benefits Program	The Pre-Tax commuter benefits program allows employees to reduce their public transit and vanpool costs by about one-third. The program works by allowing participants to deduct up to $270 per month (as of 2020) from their paycheck without paying payroll taxes on this income.
Carpool Parking	Preferential parking for UCSF employees with a valid carpool permit.
Pass Sales	Fare cards and monthly passes for select public transit agencies are available for purchase and reloading on campus at Transportation Offices.
Emergency Ride Home	Employees who need an emergency ride home can be reimbursed up to $50 for a transit, taxi, TNC or rental car trip.
Late Night Ride Home for Students with Lyft	Students can ride Lyft from campus to home, a transit hub, or other UCSF campus after hours and UCSF will cover the first $10 of the ride.
Telecommuting Policy	Telecommuting policies have typically been determined by job position/requirements and individual departments, for employees whose job duties are conducive to remote work.
Vanpool Program	The vanpool program requires a minimum of eight participants per vanpool. The driver participates for free and the riders pay about $250 per month per person, Currently, there are over 20 vanpools that travel throughout the Bay Area, and as far as Sacramento.

SOURCE: UCSF Staff, 2020; UCSF Campus Life Services webpage, 2020 the time periods during which permit holders may park, which encourages employees who are unable to obtain or unwilling to pay for a permit to commute by carpool, public transit, UCSF shuttle, biking, or walking. The vanpool program encourages employees to share higher occupancy vehicles (seating up to 12 passengers) for their commute trips; vanpools are organized on a UCSF-run website, and volunteer drivers participate in the program for free, while other participants pay a monthly fee. UCSF's telecommuting policies also allow certain employees to work remotely for one or more days per week, which reduces travel demand to/from the campus sites, including the Parnassus Heights campus site.

Pedestrian Circulation

Walking to and from the campus site is a common travel mode option for many UCSF employees and students. Based on the 2018 UCSF Employee Commute Survey, approximately 16 percent of employees commute by walking.

Pedestrian facilities include sidewalks, crosswalks, curb ramps, and pedestrian signals. Within the campus site, sidewalks exist on both sides of the street in most locations and are generally 12 feet to 15 feet wide. In some areas on the campus site, sidewalk widths exceed 20 feet. Most intersections on the campus site (except for some intersections near the Aldea housing complex site, such as Clarendon Avenue / Johnstone Drive, and 17th Street / Clayton Street) provide painted crosswalks and Americans with Disabilities Act (ADA)-compliant curb ramps, which are bidirectional, high contrast in color, and include truncated domes. High-visibility yellow continental stripe crosswalks are located at the Judah Street / Sixth Avenue and Judah Street / Seventh Avenue intersections, indicating the presence of a nearby school. There are two high-visibility continental stripe crosswalks mid-block on Parnassus Avenue adjacent to the Moffitt/Long Hospital Drop-off/Pick-up area, where there are two signalized pedestrian crosswalks with countdown timers. These signalized crossings accommodate the large number of pedestrians crossing from one side of Parnassus Avenue to the other. In general, crosswalks on Parnassus Avenue and Judah Street between Hillway Avenue and Seventh Avenue are continental stripe crosswalks. On Irving Street, a high-visibility continental stripe crosswalk has been installed at Arguello Boulevard in front of the pedestrian entrance to Medical Building 1 to improve pedestrian visibility and safety. High-visibility continental stripe crosswalks have also been recently installed at each intersection leg at Irving Street / Second Avenue and there are ADA-compliant curb ramps at each corner. Additionally, there are continental stripe crosswalks at the intersection of Stanyan Street / Fell Street / Oak Street. The intersection of 17th Street / Clayton includes standard crosswalks and an ADA-compliant curb ramp on the southwest corner of Clayton Street, but other curb ramps at the intersection are not ADA-compliant. Other crosswalks in the study area, except for the unpainted crosswalks near the Aldea housing complex site, include a mix of standard crosswalks (generally at signalized intersections), continental stripe crosswalks, and ladder crosswalks.

The results of pedestrian counts conducted on the campus site on a weekday in June 2019 between 12:00 PM and 2:00 PM are presented in **Table 4.15-3**. Counts were conducted at three crosswalks on Parnassus Avenue between Hillway Avenue and the Millberry Union Plaza and at the Irving Street / Second Avenue intersection. Pedestrian volumes were highest at the two signalized pedestrian crosswalks on Parnassus Avenue between Millberry Union Plaza and the Moffitt/Long Hospital Drop-off/Pick-up area, where approximately 1,500 pedestrians were observed at each crosswalk during the two-hour observation period. The number of people walking is substantially less at the Parnassus Avenue / Hillway Avenue intersection, where approximately 400 pedestrians were observed. Fewer people walking were observed crossing Irving Street; less than 200 people were observed crossing in the two crosswalks across Irving Street at the Irving Street / Second Avenue intersection.

TABLE 4.15-3
PEDESTRIAN COUNTS – PARNASSUS HEIGHTS

	Midday Counts	Daily Counts	
Crosswalk Location	2019[1]	2013[2]	2007[2]
Parnassus Avenue (in front of Millberry Union)	1,600	9,450	9,500
Parnassus Avenue (east of Moffitt Circle)	1,500	9,000	8,800
Parnassus Avenue / Hillway Avenue	400	2,750	3,000
Irving Street / Second Avenue[3]	200	1,700	1,600

NOTES:
[1] Conducted between 12:00 PM and 2:00 PM.
[2] Conducted between 7:00 AM and 7:00 PM.
[3] Sum of pedestrians counted on the two crosswalks crossing Irving Street at the intersection with Second Avenue.

SOURCE: Fehr & Peers, 2020.

Pedestrian counts were previously conducted at similar locations in 2013 and 2007 over a 12-hour period (7:00 AM and 7:00 PM). Although these historical counts cannot be compared directly to the recent counts, they reflect a similar pattern, with most pedestrian activity occurring at the signalized pedestrian crossings on Parnassus Avenue.

As another point of comparison, during the same 12-hour time period in which the two Parnassus Avenue signalized crosswalks accommodated approximately 18,500 crossings in 2013 and 2007, the Parnassus Avenue roadway carries about 8,500 vehicles. Thus, on average, there are over two times more pedestrians crossing Parnassus Avenue than vehicles traveling along it.

Field observations at the campus site indicate that the locations of the two signalized crosswalks across Parnassus Avenue in the campus core area are not aligned with many pedestrians' desired travel paths. A number of pedestrians exiting the UCSF Medical Center walk around Moffitt Circle and walk directly across Parnassus Avenue into the entrance to the Millberry Union building and garage, rather than walk east or west to one of the two signalized crosswalks. The

Parnassus Avenue Streetscape Plan[7] would address this issue by widening the two signalized crosswalks.

In terms of pedestrian safety, there have been 12 pedestrian-involved collisions within the area immediately adjacent to the campus site over the 10-year period between 2008 and 2017 for which publicly available collision data is available.[8] Five of these collisions occurred on Parnassus Avenue between Medical Center Way and Fifth Avenue; two collisions occurred on Irving Street between Hillway Avenue and Third Avenue; three collisions occurred on Fifth Avenue between Parnassus Avenue and Kirkham Street; and two collisions occurred at the Clarendon Avenue / Johnstone Drive intersection adjacent to the Aldea Housing complex. However, these roadway segments are not part of the citywide High-Injury Network, which identifies corridors where high numbers of people have been killed or severely injured in traffic collisions and where investments in bicycle and pedestrian infrastructure could have the largest impact on reducing fatalities and severe injuries as part of the City's Vision Zero goal. The locations closest to the campus site that are a part of the High-Injury Network are Seventh Avenue between Kirkham and Noriega Streets, Lincoln Way between Arguello Avenue and 22nd Avenue, and the Stanyan Street / Fell Street / Oak Street intersection.

Bicycle Circulation

Bicycle facilities in San Francisco consist of bicycle paths, separated bikeways, bicycle lanes, and bicycle routes. Bicycle Paths (Class I) provide a completely separated right-of-way for the exclusive shared use of cyclists and pedestrians. These facilities are off-street and minimize cross-flow traffic, but they can be adjacent to an existing roadway. Separated Bicycle Lanes (Class II) provide a striped, marked, and signed bicycle lane buffered from vehicle traffic. These facilities are located on roadways and require a minimum of four to five feet of space for exclusive bicycle traffic. Bicycle Lanes (Class II) provide a striped, marked and signed lane for bicycle travel. These one-way facilities are located on roadways and reserve a minimum of four to five feet of space for exclusive bicycle traffic. Bicycle Routes (Class III) provide a shared travel lane marked and signed for shared use with motor vehicle traffic. These facilities may or may not be marked with "sharrows" to emphasize that the roadway space is shared. Separated Bikeways (Class IV), also referred to as cycle tracks or separated bikeways, are set aside for the exclusive use of bicycles and physically separated from vehicle traffic. Separated Bikeways were adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

Bicycle facilities located within or near the campus site are presented in **Figure 4.15-5**. The campus site is within the Inner Sunset neighborhood, which has a mix of hilly and flat terrain.

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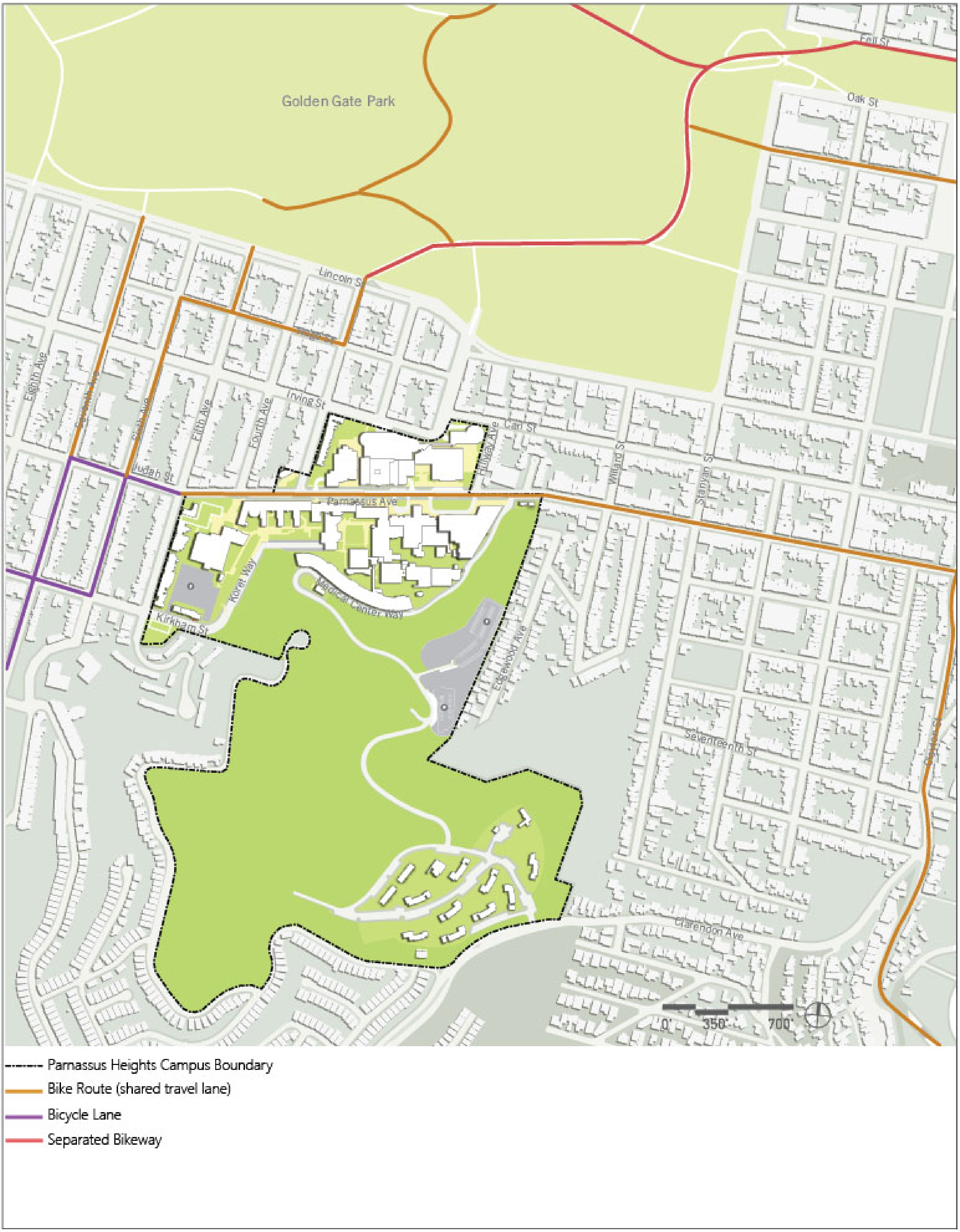
[7] Note: As discussed in Chapter 3 *Project Description*, the Parnassus Avenue Streetscape Plan was proposed and analyzed as part of the 2014 LRDP FEIR. It is expected that slight modifications to the Parnassus Avenue Streetscape Plan would be made to conform to new development proposals that front Parnassus Avenue. Those modifications would be specified as adjacent new buildings are designed.

[8] Data accessed via Transportation Injury Mapping System (TIMS), *Safe Transportation Research and Education Center, University of California, Berkeley.* 2020



SFO D180291.00 - UCSF CPHP EIR/2 Graphics/Illustrator

SOURCE: Fehr & Peers, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.15-5
Parnassus Campus Existing Bicycle Network

Hillway, Third, and Fourth Avenues connect Irving Street to Parnassus Avenue at the campus site, but they feature steep grades that are difficult for people to bicycle uphill without electrical assistance. Sixth Avenue and Seventh Avenue provide flatter north/south connections west of the campus site, and also include Class II and Class III bicycle facilities, respectively.

Although traffic volumes on Parnassus Avenue are lower than other two-lane corridors in San Francisco such as Polk Street, high pedestrian volumes, double-parking, and loading activity can make bicycling on Parnassus Avenue more challenging. While there is less pedestrian and loading activity on Irving Street, cyclists share the road with Muni light rail vehicles, and may risk catching their bicycle wheels in the light rail tracks that run through the center of the street.

Despite these challenges, bicycling is a viable and common travel mode at the campus site. UCSF has identified bicycling as an effective tool in reducing congestion and pollution, promoting good health, and creating a livable environment. Based on the 2018 UCSF Employee Commute Survey, approximately 6 percent of employees travel to and from the campus site by bicycle.

Bicycle counts were collected along Parnassus Avenue and Irving Street, between 4:00 PM and 6:00 PM on a typical weekday in May 2019, as part of the previously described gateways counts. In the eastbound direction, Irving Street/Carl Street carried approximately twice as many bicycles as Parnassus Avenue, where in the westbound direction, bicycle volumes on the two streets were similar. Higher volumes along Irving Street/Carl Street may be due to the fact that the street is relatively flat compared to Parnassus Avenue, and/or influenced by the location of the UCSF bicycle cage on the ground level of the Millberry Union Garage, which is accessible from Irving Street/Second Avenue. In terms of change over time, in 2013, bicycle counts along Parnassus Avenue had increased four-fold when compared to 2007, paralleling the uptick in bicycle use throughout the city that has been reported by the SFMTA and observed on key corridors, such as Market Street.

UCSF provides free, secured bicycle parking inside a bicycle cage in the Millberry Union garage. There are bike racks at seven additional locations throughout the campus site: from east to west, they are at the Medical Building 1, LPPI, Health Sciences East, the Kalmanovitz Library, the Clinical Sciences building, the School of Nursing, and the Dental Clinics building. There are also on-street bicycle racks located along Parnassus Avenue; however, most bicyclists are encouraged (by signs) to park in the designated bicycle parking areas in the campus site buildings. During site visits conducted in 2019, the designated bicycle parking areas were well utilized, and some bikes were observed parked at parking meters and sign poles, indicating a high demand for bicycle parking facilities.

Loading Conditions

Loading conditions on the campus site reflect both service vehicle and passenger loading activity. There are approximately 10 designated off-street service vehicle loading facilities (with a total of 17 truck loading spaces) serving the existing uses on the campus site. Although all the loading areas are used regularly for building deliveries, the Central Receiving Area and Long Hospital are typically the busiest locations throughout the day.

Passenger loading generally takes place in the Moffitt Loop, located on Parnassus Avenue in front of Moffitt Hospital, or in passenger loading zones, UCSF shuttle stops, and Muni bus stops located along Parnassus Avenue. There are approximately 13 designated passenger loading spaces provided along Parnassus Avenue and approximately six spaces provided at Moffitt Loop, which provide a total of 19 spaces. Moffitt Loop consists of two lanes: a curb lane that provides short term parking spaces (15 minutes or less) at the curb and a travel lane in which passenger loading generally occurs; parked vehicles were generally observed at 75 - 100 percent of the curb spaces. Based on observations at Moffitt Loop during a typical afternoon, passenger loading generally occurs within one to two minutes, with some vehicles waiting for up to 10 minutes for a passenger to arrive to be picked up. Based on the 2018 UCSF Employee Commute Survey, approximately 2 percent of employees/staff are dropped off at work and 4 percent travel to and from the campus site by taxi or a transportation network company vehicle (TNC; e.g., Uber or Lyft, or a future company providing a similar service).

The loading area located on Parnassus Avenue in front of the Medical Building 1 serves passenger vehicles, service vehicles, emergency vehicles, and is the location for valet service. This area is also a popular location for private vehicle and TNC pick-up and drop-off activities. Drivers picking up or dropping passengers idle at or adjacent to the designated passenger loading area (with white curb space) in front of Medical Building 1. While vehicles dropping off passengers typically occupy the curb for 30 seconds or less, those making pick-ups can take up to several minutes due to either waiting for passengers or extra time needed to communicate with passengers. This area in particular can become congested throughout the day, sometimes leading to vehicles blocking a lane of traffic as passenger and service loading occurs.

There are also approximately 25 on-street service vehicle spaces along Parnassus Avenue. Roughly 300 feet of curb space in front of the Clinical Sciences Building is currently being used for construction vehicles associated with renovation of the Clinical Sciences Building. When there are no other construction activities in progress, approximately 15 spaces would be available for parking and/or loading activities.

Emergency Vehicle Access

Emergency transport vehicles in the area typically use major streets, including Parnassus Avenue/Judah Avenue, Stanyan Street, Lincoln Way, and Seventh Avenue, heading to and from an emergency and/or emergency facility. Arterial roadways allow the emergency vehicles to travel at higher speeds and permit other traffic to maneuver out of the path of the emergency vehicle, as required by the California Vehicle Code. The San Francisco Fire Department stations closest to the campus site are: Station 12, located on Stanyan Street at Grattan Street (approximately 0.3 miles to the east); Station 20, located on Olympia Way at Clarendon Avenue (approximately 0.8 miles to the south); and Station 22, located on Irving Street at 16th Avenue (approximately 0.9 miles to the west).

The UCPD serves the campus site, and has a substation located on the campus site. The San Francisco Police Department stations closest to the campus site are Park Station, located on

Kezar Drive in Golden Gate Park (approximately one-half mile to the northeast) and Richmond Station on Sixth Avenue at Geary Boulevard (approximately 1.2 miles to the north).

Vehicle Miles Traveled

Vehicle miles traveled (VMT) per person (or per capita) is a measurement of the amount and distance that a resident, employee, or visitor drives, accounting for the number of passengers within a vehicle. In general, higher VMT areas are associated with more air pollution, including greenhouse gas emissions, and energy usage than lower VMT areas. Many interdependent factors affect the amount and distance a person might drive. In particular, the type of built environment affects how many places a person can access within a given distance, time, and cost, using different ways of travels (e.g., private vehicle, public transit, bicycling, walking, etc.). Typically, low-density development located at great distances from other land uses and in areas with few options for ways of travel provides less access than a location with high density, mix of land uses, and numerous ways of travel. Therefore, low-density development typically generates more VMT per capita compared to a similarly sized development located in urban areas.

Given these travel behavior factors, on average, persons living or working in San Francisco have a lower level of VMT per person than persons living or working elsewhere in the nine-county San Francisco Bay Area region. In addition, persons living or working in some areas of San Francisco have a lower level of VMT per person than persons living or working elsewhere in San Francisco. The City estimates different levels of VMT per capita geographically by transportation analysis zones (TAZs).[9]

To evaluate the transportation impacts of new development proposed in San Francisco, the San Francisco Planning Department has adopted a VMT analysis methodology, which is described in the current version of the *Transportation Impact Analysis Guidelines for Environmental Review* (*SF Guidelines*) published in February 2019 and updated in October 2019. The SF Guidelines use the San Francisco County Transportation Authority's (Transportation Authority) San Francisco Chained Activity Modeling Process (SF-CHAMP) travel demand forecasting model to estimate VMT by private automobiles and taxis in different TAZs. The Transportation Authority's calibration of travel behavior in the model is based on observed behavior from the California Household Travel Survey, 2010–2012; census data regarding automobile ownership rates and county-to-county worker flows; and observed vehicle counts and transit boardings. The model uses a synthetic population, which is a set of individual actors that represents the Bay Area's actual population and makes simulated travel decisions for a complete day.

The model estimates daily VMT for residential, office, and retail land use types. For residential and office uses, the Transportation Authority uses tour-based analysis. A tour-based analysis examines the entire chain of trips over the course of a day, not just single trips to and from a site. For the evaluation of retail VMT, the Transportation Authority uses a trip-based analysis.

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[9] Planners use these zones as part of transportation planning models for transportation analyses and other planning purposes. The zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas such as the Hunters Point Shipyard area.

A trip-based analysis counts VMT from individual trips to and from a site (as opposed to the entire chain of trips, which represents a tour). A trip-based approach, as opposed to a tour-based approach, is necessary for retail sites because a tour is likely to consist of several retail trips stopping in multiple locations. Summarizing tour VMT to each location would over-estimate the retail VMT due to longer travel distances.[10,11,12]

Because the campus site encompasses multiple TAZs, the per capita values presented in the *SF Guidelines* could not be used directly. Instead, the existing total daily VMT for the residential and office uses of each TAZ were obtained from the SF-CHAMP model, aggregated for the five TAZs, and then divided by the applicable geographic household population or office jobs to calculate the average daily VMT per capita. Existing average daily VMT per capita for the various land uses at the campus site is less than the Bay Area regional averages.

Therefore, the campus site and surrounding area have a relatively low VMT average, compared to regional averages. This is a function of the campus site's mix of uses and different populations as well as its central location and accessibility to transit. The land uses at the campus site include residential, medical work, medical visits, and retail. As discussed later in this document, medical work has been analyzed as office for VMT screening and analysis purposes. The SFCTA model does not report VMT per capita for medical visits; VMT per capita for medical visits is larger than for medical work, as given the reputation and specialized care offered by UCSF, the campus draws from beyond the immediate region – 67% of medical visits to UCSF begin or end in the San Francisco Bay Area region compared to 96% of medical work trips. Given the relatively small size and ancillary nature of the retail uses at the campus site, the potential changes in retail VMT were not evaluated in this report. **Table 4.15-4** presents the existing VMT per capita for residential and office land uses for the campus site.

TABLE 4.15-4
EXISTING DAILY VMT PER CAPITA

Area	Residential: Average VMT per Resident	Office: Average VMT per Employee
Bay Area Regional Average	17.2	19.1
UCSF Parnassus Area[1]	9.8	8.9

NOTES:
[1] TAZs 226, 227, 545, 546, and 547; includes adjacent residential, retail, medical and other office uses unrelated to UCSF.

SOURCE: Adavant Consulting, 2020.

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[10] To state another way, a tour-based assessment of VMT at a retail site considers VMT for all trips in the tour for any tour with a stop at the retail site. If a single tour stops at two retail locations, for example, a coffee shop on the way to work and a restaurant on the way back home, then both retail locations would be allotted the total tour VMT. A trip-based approach allows an apportionment of all retail-related VMT to retail sites without double counting.

[11] Retail travel is not explicitly captured in SF-CHAMP; rather, there is a generic "other" purpose that includes retail shopping and all other non-work, non-school tours. The retail efficiency metric captures all of the "other" travel generated by Bay Area households. The denominator of employment represents the size, or attraction, of the zone for this type of "other" travel.

[12] San Francisco Planning Department, Executive Summary: Resolution Modifying Transportation Impact Analysis, Appendix F, Attachment A, March 3, 2016.

Parking Conditions

Although parking is not considered in determining if a project has the potential to result in significant environmental impacts, this section presents information regarding the existing parking supply in relation to the parking demand, both on- and off-street facilities, for context and for informational purposes.

On-Street Parking

On-street parking is provided on most streets near the campus site, primarily with parallel parking on both sides of the street. Due to the steep topography of the area, parking spaces perpendicular to the direction of travel are provided on some streets, on one side of the street only. A variety of parking regulations apply, with the majority of the spaces subject to Residential Parking Permit (Zone “J”) restrictions (two-hour parking, except for residents, Mondays through Friday from 8:00 AM to 5:00 or 6:00 PM). Other parking spaces have meters and/or allow parking only during the non-peak commute periods.

Parking occupancies, as shown in **Table 4.15-5**, are about 90 percent on average over the course of the day. The parking demand in this area is primarily associated with residential uses and the campus site during the mid-morning (10:00 AM – 12 Noon) and midday (12 Noon – 2:00 PM) periods, and the residential and nearby neighborhood commercial uses during the evening period.

TABLE 4.15-5
ON-STREET PARKING OCCUPANCY – PARNASSUS HEIGHTS AREA

Corridor	Time	Percent Occupancy
Parnassus Avenue – Fifth Avenue to Stanyan Street	10:00 AM	88%
	12:00 PM	87%
	6:00 PM	82%
Fourth Avenue – Lincoln Way to Parnassus Avenue	10:00 AM	103%
	12:00 PM	100%
	6:00 PM	101%
Irving Street – Sixth Avenue to Arguello Boulevard	10:00 AM	85%
	12:00 PM	83%
	6:00 PM	79%
Arguello Boulevard – Frederick Street to Hugo Street	10:00 AM	96%
	12:00 PM	100%
	6:00 PM	92%
Frederick Street – Arguello Boulevard to Stanyan Street	10:00 AM	94%
	12:00 PM	91%
	6:00 PM	92%
Total	**-**	**91%**

SOURCE: Fehr & Peers, 2020.

These parking occupancies do not consider residents who park in their own driveways, which is typical in this area given the high parking demand, vehicles idling or parked in loading zones, or vehicles parked in designated motorcycle parking spots.

Based on travel behavior surveys conducted at the campus site in recent years, it is estimated that approximately 1,000 on-street parking spaces are utilized by UCSF employees, patients and/or visitors during the peak parking hour on an average weekday.

Off-Street Parking

There are several UCSF-managed off-street parking facilities on or near the campus site that provide approximately 2,300 public and permit-only parking spaces, in addition to the 236 parking spaces provided at the Aldea Housing complex. The two structured parking garages on campus are the Millberry Union / Kalmanovitz Library garage and the Medical Building 1 garage.

The Millberry Union / Kalmanovitz Library garage is located between Parnassus Avenue and Irving Street and has approximately 870 parking spaces, which are available to the general public. In addition, staff, faculty, and students may purchase monthly “N” parking permits to park in this garage on weekdays from 2:00 PM to 8:00 AM and anytime on the weekend, and monthly “L” parking permits to park in this garage on weekdays from 4:45 PM to 8:00 AM and anytime on the weekend. As shown in **Table 4.15-6**, existing parking occupancy peaks at approximately 90 percent at 11:00 AM, and remains at approximately 90 percent until after 3:00 PM.

The Medical Building 1 garage is located adjacent to the Millberry Union garage, at the Irving Street / Arguello Boulevard intersection, and provides approximately 670 marked parking spaces and approximately 100 vehicles parked outside of marked spaces via attendant parking services during peak parking hours. Permit parking is available for faculty, staff with patient care responsibilities, and senior management. As shown in Table 4.15-6, the garage is almost or fully occupied from 9:00 AM until 3:00 PM, after which parking occupancy declines.

TABLE 4.15-6
OFF-STREET PARKING GARAGE OCCUPANCY

	Percent Occupancy	
Time	Medical Building 1 Garage	Millberry Union / Kalmanovitz Library Garage
7:00 AM	78%	50%
9:00 AM	100%	62%
11:00 AM	98%	92%
1:00 PM	99%	89%
3:00 PM	95%	87%
5:00 PM	61%	59%

SOURCE: Fehr & Peers, 2020.

Other off-street parking facilities on the campus site include the following:

- Proctor surface lot is located south of Kirkham Street near the intersection of Fifth Avenue and provides 17 spaces available by permit.
- The Westside surface lot is located behind the Dental Clinics Building at Fourth Avenue and Kirkham Street, on the western edge of the campus site, and provides 151 parking spaces.
- Beckman surface lot is located on Koret Way across from the Beckman Vision Center, and provides 64 parking spaces.
- The Environmental Health and Safety Building has a 12-space surface parking lot, off Medical Center Way. Parking on this lot is available by permit.
- The Surge and Woods lots form a 157-space surface parking lot located off Medical Center Way above the campus site. Parking permits for this location are issued for staff.
- The LPPI has a 21-space surface parking lot, off Medical Center Way at the eastern edge of the campus site. Parking on this lot is available by permit.
- The Emergency Room parking area is accessed off Parnassus Avenue at the southeast end of the campus site and provides 16 parking spaces reserved for ambulances, emergency patients, and for designated radiation and chemotherapy patients.
- Aldea surface parking lots are located within the Aldea Housing complex area in the southern portion of the campus site and contain 236 parking spaces reserved for the residents of the complex.

In addition, the Kezar surface lot is a city-owned parking facility adjacent to Kezar Pavilion on Stanyan Street. UCSF has about 200 spaces reserved at this facility for staff and faculty use during the day. UCSF shuttle bus service is provided every 10 to 20 minutes on average between the Kezar lot and the campus site from 5:30 AM to 9:00 AM.

4.15.2 Regulatory Framework

UCSF is situated on land that is owned or controlled by the Regents of the University of California. As such, UCSF is exempted by the State constitution from compliance with local land use regulations, including general plans and zoning, whenever using property under its control in furtherance of its educational mission. Transportation improvements or modifications required to mitigate impacts of the CPHP to roadways under the authority of the City of San Francisco would be the responsibility of the City and would need to be approved by the applicable City agencies. However, UCSF consults and coordinates on a regular basis with the City (e.g., the Planning Department, SFMTA, San Francisco Public Works (SFPW), and Office of Community Investment and Infrastructure) when planning new development within the City, especially if improvements are being proposed within City rights-of-way adjacent to campus sites. University of California, UCSF and City plans and policies that are relevant to the CPHP are described below.