5.0.2 Major Components of the 2014 LRDP

5.0.2.1 Functional Zones

The LRDP contains land use maps, or "functional zone" maps for UCSF's three main campus sites: Parnassus Heights, Mission Bay and Mount Zion. The maps reflect the proposed geographical organization of the predominant land use functions at these campus sites, and they provide guidance for capital construction and infrastructure development to accommodate a building program for campus growth. The functional zones and their predominant and secondary uses are described in Table 3-1 in Chapter 3, *Project Description*. The functional zones are generally consistent with UCSF building space categories, except that Instruction space is distributed throughout the Research, Clinical and Support zones. There are also functional zones for Housing, Open Space and Parking (structured).

5.0.2.2 Space Program

The LRDP plans for projected campus growth of approximately 2.39 million gsf by 2035. Most of this space is allocated into the following major use categories: Instruction, Research, Clinical, Support and Housing.

5.0.2.3 Average Daily Population

The estimated UCSF average daily population across all campus sites, including patients and visitors, was approximately 39,420 in 2013. At LRDP horizon in 2035 (which includes the Phase 2 Medical Center at Mission Bay), total population is projected to reach approximately 56,420, an increase of about 17,000.

5.0.3 Other LRDP Programs and Policies

5.0.3.1 Greenhouse Gas Reduction Strategy

As part of implementing the UC *Policy on Sustainable Practices*, UCSF has developed a Climate Action Plan, a long-term strategy for voluntarily meeting the State of California's goal for reducing greenhouse gas (GHG) emissions to 1990 levels by 2020, pursuant to the *California Global Warming Solutions Act of 2006* (AB 32). In addition, as part of the 2014 LRDP, UCSF proposes a Greenhouse Gas Reduction Strategy to provide streamlined analysis under CEQA for future development projects. The GHG Reduction Strategy, includes two categories of GHG reduction measures: those to which UCSF is currently committed to in terms of funding and/or implementation (called "Tier 1" measures), and those that are in the planning stages (called "Tier 2" measures). Tier 2 measures chiefly involve the expansion or intensification of the Tier 1 measures. The implementation of the GHG Reduction Strategy to a large degree involves improving the energy efficiency of existing buildings on UCSF campus sites and incorporating green building standards into the designs of future buildings. Renovations of existing buildings would likely be limited primarily to building interiors with no resulting adverse environmental effects. These types of activities would generally be considered to be part of normal, routine maintenance operations of the University and would not be subject to environmental review

under CEQA. The environmental effects of the construction of new buildings by UCSF during the 2014 LRDP planning horizon are analyzed in the relevant sections of this EIR. Incorporation of green building standards into the design of proposed buildings would have beneficial effects, such as reduced energy and water demand. The GHG Reduction Strategy also includes a proposed solar photovoltaic (PV) energy installation at the Mission Bay Hospital, as well as other PV projects at other undetermined UCSF locations. Because the design of this installation on the Mission Bay campus site has not been completed, the specific characteristics of this possible facility cannot be analyzed at this time. Subsequent CEQA review may be necessary once the design of this or any other PV facility become available. Other GHG reduction strategies include increasing the University's purchase of green electricity and biogas, reducing vehicle trips, and expanding the University's fleet of fuel-efficient and alternative-fuel vehicles. The physical effects of these measures are primarily limited to the land use decisions the University is making as part of the LRDP. These decisions include increasing on-site campus amenities (such as child care, food services, and recreation/fitness facilities) and housing for faculty and students in order to reduce vehicle trips. Any physical environmental effects resulting from the University's land use decisions and building program are analyzed in the applicable sections of this EIR.

5.0.3.2 Transportation Demand Management Program

To minimize traffic generated by UCSF current and planned facilities, UCSF proposes to implement more robust Transportation Demand Management (TDM) measures. These include enhancing the City CarShare and UCSF's carpool programs, expanding bicycle parking and access to showers and lockers, promoting ridesharing participation, and, with new campus development, enhancing the shuttle system. Similar to the GHG Reduction Strategy, the TDM Program could result in physical environmental effects across multiple campus sites. As with the GHG Reduction Strategy, these effects are analyzed in the appropriate sections of this EIR, primarily in Section 5.14, *Transportation and Traffic Impacts of the 2014 LRDP*.

5.0.4 Proposals under the 2014 LRDP

The 2014 LRDP is driven by the need to comply with the requirements of the *Alquist Seismic Safety Act* and subsequent amendments, the UC *Policy on Seismic Safety*, UC's *Policy on Sustainable Practices* and the 1976 Regents' Resolution regarding the Parnassus Heights campus site space ceiling, as well as a number of other state and local policies.

To support and achieve its missions, UCSF proposes to grow where growth can be reasonably accommodated at its currently owned sites: primarily at Mission Bay, to a limited extent at Mount Zion, and if needed, in a new building at Mission Center. While most of this growth is proposed to be accommodated in new buildings, a portion would be met through better utilization of existing space through implementation of a new UCSF-wide space policy, renovation of obsolete labs and repurposing of vacant and underutilized space. It is also envisioned that new space would be developed to accommodate a greater density of occupants than in the past for greater space efficiency and higher utilization.

A primary focus of the LRDP is to address Senate Bill 1953 (SB 1953), which mandates that all inpatient facilities in the State of California meet more stringent seismic regulations by 2030. The opening of the first phase of the Medical Center at Mission Bay in 2015 will provide opportunities at the Parnassus Heights and Mount Zion campus sites to re-occupy (or "backfill") space that will be vacated when programs and occupants relocate to the new Medical Center at Mission Bay. Many of the highly complex adult clinical programs will remain at Parnassus Heights. Mount Zion will be developed into an ambulatory care center and outpatient hub. Both the Parnassus Heights and Mission Bay campus sites will provide inpatient, outpatient, research and administrative functions, as well as campus housing. All four schools—Dentistry, Medicine, Nursing and Pharmacy, as well as the Graduate Division—will remain at the Parnassus Heights campus site. To meet the SB 1953 mandate at Parnassus Heights, UCSF proposes to decommission inpatient care in Moffitt Hospital by the 2030 SB 1953 deadline, build a new hospital addition to Long Hospital and reconfigure its inpatient and outpatient programs across the three major campus sites. To meet housing demand and reduce commute traffic, UCSF also proposes additional campus housing at the Parnassus Heights and Mission Bay campus sites where demand for housing is greatest. More housing at both campus sites would make it possible to realign students, postdoctoral scholars and faculty to live where they attend classes or work. Other campus facilities would be developed, including more child care space where it is most needed, indoor and outdoor recreation and fitness facilities, shuttle support facilities, retail and more and enhanced open space areas.

The LRDP sets overall guidelines for the facilities needed to serve the projected activities of UCSF through 2035. The 2014 LRDP proposes an additional 2.39 million gsf of space at LRDP horizon in 2035. Of this new space, roughly 1.5 million gsf would be built at the Mission Bay campus site. Thus, most of the potential environmental effects resulting from implementation of the 2014 LRDP would occur at the Mission Bay campus site.

The LRDP considers how the campus sites and buildings will be used, the amount of building space needed (in gsf), and the resulting populations at UCSF campus sites. Population campus-wide, including patients and visitors, is projected to be approximately 56,420 in 2035. Population is projected to increase by approximately 600 at the Parnassus Heights campus site, 1,600 at Mount Zion and 500 at Mission Center by 2035. The average daily population at the Mission Bay campus site would increase by about 17,000 at the LRDP horizon.

The LRDP, by assigning uses and a space program at each campus site, directs the growth and change that is projected to occur at each site during the lifetime of the LRDP. Specifically, the LRDP proposes that the major physical changes due to these programs would occur only at four campus sites: Parnassus Heights, Mission Bay, Mount Zion and Mission Center. These interrelated aspects of the LRDP will be implemented, in part, by undertaking a step-wise series of individual "proposals": 1) at Parnassus Heights to demolish buildings to reduce existing building space, to renovate two existing buildings to make office and new housing space available, and by 2030, to decommission and reuse Moffitt Hospital and build a new hospital addition to Long Hospital; 2) at Mount Zion to demolish existing buildings on the main block to make room for a new office and research building; 3) at Mission Bay, to construct new housing,

office, research and clinical buildings, as well as infrastructure and, 4) at Mission Center, to construct a new office building and garage.

These LRDP actions proposed at the Parnassus Heights, Mission Bay, Mount Zion and Mission Center campus sites naturally group into four general categories – 1) demolition, 2) renovation and re-use of existing structures, 3) construction of new facilities, and 4) circulation, open space, and utilities/infrastructure proposals – that are convenient ways to organize and consider the physical actions that would occur with the implementation of the 2014 LRDP. These LRDP proposals, grouped in four categories, are:

2014 LRDP Demolition Proposals[1]

- Surge (PH)
- Woods (PH)
- Medical Research 4 (PH)
- Laboratory of Radiobiology (PH)
- Proctor (PH)
- Environmental Health and Safety (PH)
- Koret Vision Research (PH)
- Langley Porter Psychiatric Institute (LPPI) and support structures (PH)
- Hellman (MZ)
- Harold Brunn Institute (Brunn) (MZ)
- Dialysis Center (MZ)
- 2255 Post (or retrofit) (MZ)

2014 LRDP Renovation Proposals

- UC Hall (PH)
- Millberry Union towers (PH)
- Moffitt Hospital (PH)
- Faculty Alumni House seismic retrofit (PH)
- Fifth Avenue houses conversion to faculty housing (PH)
- Main Hospital (MZ)
- 2255 Post Street (or demolition) (MZ)

2014 LRDP Construction Proposals

- New Hospital Addition (PH)
- New Faculty Housing at Fifth and Parnassus avenues (PH)
- New Faculty Housing on Proctor site (PH)
- New Housing on Block 15 (MB)
- Develop Additional Research Capacity on Blocks 16, 18A, 23A, 25B, 33 and 34 (MB)

[1] PH = Parnassus Heights campus site; MB = Mission Bay campus site; MZ = Mount Zion campus site; MC = Mission Center campus site.

- Phase 1 Medical Center at Mission Bay – Cancer outpatient building (MB)
- Phase 2 Medical Center at Mission Bay (MB)
- New parking structures on Blocks 18, 33/34, and 38 (MB)
- Office/Research building (MZ)
- Office building and parking facility (MC)

2014 LRDP Circulation, Open Space, and Utilities/Infrastructure Proposals

- Parnassus Avenue Streetscape Plan (PH)
- Traffic-calming measures (PH)
- Saunders Court renovation (PH)
- Mount Sutro Open Space Reserve trails (PH)
- Medical gas storage tanks (PH)
- Diesel fuel storage tank replacement (PH)
- Retaining wall (PH)
- Block 15 pump station upgrade (MB)

2014 LRDP Proposal Construction Time Frames

Activities to implement the 2014 LRDP proposals would occur between 2015 and the LRDP horizon in 2035, as presented in **Table 5-1**, below. The 2014 LRDP proposals are generally anticipated to occur within four sequential time frames shown in this table. They are grouped here by type of activity within each five- to six-year time frame; however, their order does not indicate a proposed sequence for the activities within each time frame. The actual sequence of these activities would be determined by UCSF based on program needs and funding.

Note that there could be delays between the demolition of any given structure and the start of construction of a new building at that site. Regardless of the cause, there could be a period of time when the demolition site would remain vacant. Specific potential environmental effects of such delays are discussed in Sections 5.1, *Aesthetics*, and 6.1 for the Parnassus Heights campus site and Section 8.1 for the Mount Zion campus site. In the event that baseline environmental conditions change because of along delay between demolition and new construction, they would be analyzed under CEQA.

TABLE 5-1
LRDP PROPOSAL CONSTRUCTION TIME FRAMES

Proposal Category	Proposal Title	Square Feet / Number of Dwelling Residential Units
2015 - 2019		
Demolition	Medical Research 4 (PH)	12,300 gsf
Demolition	Laboratory of Radiobiology (PH)	18,200 gsf
Demolition	Woods (PH)	3,900 gsf
Demolition	Surge (PH)	11,400 gsf
Demolition	Hellman, Brunn, and Dialysis Center (MZ)	85,000 gsf
Renovation	UC Hall-Phase 1 (PH)	74,700 gsf/105 units
Renovation	Faculty Alumni House (PH)	7,400 gsf
Renovation	Main Hospital (MZ)	--
Construction	Housing at Fifth and Parnassus Avenues (PH)	48,400 gsf/45 units
Construction	Block 15 (MB)	418,200 gsf
Construction	Block 33 (MB)	275,000 gsf
Construction	Block 33/34 Parking Garage (MB)	167,500 gsf
Construction	Cancer outpatient (MB)	124,500 gsf
Construction	Office/Research building (MZ)	257,300 gsf[2]
Other	Parnassus Avenue Streetscape Plan-Phase 1 (PH)	--
Other	Mount Sutro Open Space Reserve trails (PH)	--
Other	Medical gas storage tanks (PH)	--
Other	Retaining wall (PH)	--
2020 -2024		
Demolition (or Renovation)	2255 Post Street (MZ)	7,450 gsf
Construction	Block 23A (MB)	232,200 gsf
Construction	Block 34 (MB)	225,000 gsf
Construction	Block 18 Parking Garage -Phase 1 (MB)	271,000 gsf
Construction	Office building (MC)	100,000 gsf
Construction	Parking Garage (MC)	95,000 gsf
Other	Parnassus Avenue Streetscape Plan-Phase 2 (PH)	--
Other	Saunders Court renovation (PH)	--
2025-2030		
Demolition	Langley Porter Psychiatric Institute and support structures (PH)	111,100 gsf
Construction	New Hospital Addition (PH)	308,000 gsf
Construction	Block 16 (MB)	377,400 gsf[3]
Construction	Block 25B (MB)	323,000 gsf

2 An additional 78,000 gsf of parking may be developed either underground or off-site.
3 Alternatively, Block 16 may include one research and/or office building and a central utility plant totaling approximately 289,000 gsf.

TABLE 5-1 (Continued)
LRDP PROPOSAL CONSTRUCTION TIME FRAMES

Proposal Category	Proposal Title	Square Feet / Number of Dwelling Residential Units
2031 -2035		
Demolition	Proctor (PH)	9,900 gsf
Demolition	Koret Vision Research (PH)	43,000 gsf
Demolition	Environmental Health and Safety (PH)	6,200 gsf
Renovation	UC Hall-Phase 2 (PH)	68,300 gsf/64 units
Renovation	Millberry Union towers (PH)	46,600 gsf/83 units
Renovation	Moffitt Hospital (PH)	378,700 gsf
Construction	Proctor housing (PH)	30,400 gsf/32 units
Construction	Block 18A (MB)	193,000 gsf
Construction	Block 18 Parking Garage-Phase 2 (MB)	271,000 gsf
Construction	Phase 2 Medical Center at Mission Bay (MB)	793,500 gsf
Construction	Block 38 Parking Garage (MB)	up to 1,300 parking spaces

5.1 Aesthetics Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that there are no scenic highways in the vicinity of the Parnassus Heights, Mission Bay, Mount Zion or Mission Center campus sites. Therefore, no impact to scenic resources would result from implementation of the 2014 LRDP.

Buildings proposed for demolition at the Parnassus Heights campus site are mostly low-rise structures, and are generally obscured from public views by surrounding buildings and/or trees and other vegetation. Although the demolition of LPPI would alter the view of that site on the north slope of Mount Sutro, its loss would not adversely affect the scenic vista of the Parnassus Heights campus site since its removal would allow for more expansive views of Mount Sutro. The Mount Zion campus site and surrounding neighborhood are located on land that is relatively flat, and offer no scenic vistas; therefore, demolition of proposed buildings would have no effect on a scenic vista.

The Initial Study prepared for the 2014 LRDP concluded that demolition and renovation proposals at the Parnassus Heights and Mount Zion campus sites would not substantially degrade the existing visual character or quality of those respective campus sites.

None of the open space or utilities proposals at the Parnassus Heights campus site has the potential to have a substantial adverse impact on scenic vistas, visual character or quality, street-level winds or shadows in public open spaces.

Impact AES-LRDP-1: Implementation of the 2014 LRDP would not have a substantial adverse effect on a scenic vista. (Less than Significant)

New growth proposed by the 2014 LRDP would occur at the Parnassus Heights, Mission Bay, Mount Zion and Mission Center campus sites. Besides the New Hospital Addition, other development proposed at the Parnassus Heights campus site include possible faculty housing at the Proctor site and at 1414 Fifth Avenue/735 Parnassus Avenue. The proposed New Hospital Addition would be adjacent to and visible from Parnassus Avenue, and due to the combination of the elevation of the hillside site and the height of the proposed hospital, would also be visible from a number of distant public view locations, including from Golden Gate Park to the north of the campus site. Development of 2014 LRDP proposals at the Parnassus Heights campus site is discussed in Section 6.1.

Growth proposed under the 2014 LRDP at the Mission Bay campus site would occur on Blocks 15, 16, 18, 23, 25, 33, and 34 as well as the cancer outpatient building adjacent to the Phase 1 Medical Center at Mission Bay. In addition, for purposes of the EIR analysis, Phase 2 of the Medical Center is assumed to be constructed by 2035. Building designs on the North Campus (Blocks 15, 16, 18, 23, and 25) would be in accordance with the *Mission Bay Campus Master Plan and Design Guidelines* (CMPDG). Future development of the East Campus (Blocks 33 and 34), per agreement with the City under a Memorandum of Understanding (MOU), would be consistent with the *Mission Bay South Redevelopment Area Plan "Design for Development"* guidelines, and other design criteria specified in the MOU. The *Mission Bay South*

Redevelopment Area Plan "Design for Development" designated view corridors along street alignments in Mission Bay to preserve the orientation and visual linkages to the San Francisco Bay and Mission Creek, to nearby hills, the Bay Bridge and the downtown skyline; and to preserve orientation and visual linkages that provide a sense of place within Mission Bay. Continued development of the Medical Center at Mission Bay would be consistent with the development standards set forth in the MOU with the City for that site. The MOU for the Medical Center at Mission Bay modified the CMPDG guidelines and included specific standards pertaining to building height, bulk, setbacks, stepbacks, streetwall height, view corridors, streetscapes, and signage. Therefore, as discussed further in Section 7.1, new growth proposed at the Mission Bay campus site under the 2014 LRDP would not result in an adverse effect on scenic vistas.

Growth proposed at the Mount Zion campus site by the 2014 LRDP would include a new office/research building on the site currently occupied by the Hellman, Harold Brunn Institute and Dialysis Center buildings. Growth proposed under the 2014 LRDP at the Mission Center campus site includes a new office building and parking facility. As discussed in Sections 8.1 and 9.1, respectively, proposed development at the Mount Zion or Mission Center campus sites would not result in an adverse effect on scenic vistas.

In conclusion, no adverse effects on scenic vistas would result from growth proposed by the 2014 LRDP; therefore, the impact would be less than significant.

Mitigation: None required.

Impact AES-LRDP-2: Implementation of the 2014 LRDP would not degrade the existing visual character or quality of UCSF campus sites and surrounding area. (Less than Significant)

As discussed above under Impact AES-LRDP-1, growth proposed under the 2014 LRDP at the Parnassus Heights campus site includes two small residential buildings and the New Hospital Addition. Growth proposed under the 2014 LRDP at the Mission Bay campus site would occur on Blocks 15, 16, 18, 23, 25, 33 and 34 as well as the Phase 2 of the Medical Center at Mission Bay and the cancer outpatient building. The proposed office/research building at the Mount Zion campus site would be built on the east side of the main block where the Hellman, Harold Brunn Institute (Brunn) and Dialysis Center buildings are currently located. Growth proposed under the 2014 LRDP at the Mission Center campus site includes a new office building and parking facility.

Although changes in appearance at all four campus sites would be noticeable, new development proposed under the 2014 LRDP would be built in accordance with UCSF's *Physical Design Framework* and *Facilities Design Guidelines* and would comply with the 2014 LRDP's goals regarding Building and Public Realm Design. New buildings would be sited within the appropriate functional zone at each respective campus site. The Mount Zion campus site is the only location where there might be an interim condition in which a site (Hellman, Brunn, and/or Dialysis Center) remains vacant for a period of time after demolition of existing building(s) and

prior to construction of a proposed new building. The vacant site may be used on a temporary basis as parking and could include fencing and screening.

New buildings proposed at the Mission Bay campus site would also comply with the CMPDG. Proposed development on Blocks 33 and 34 would follow the *Mission Bay South Redevelopment Area Plan "Design for Development"* guidelines regarding building height, bulk, setbacks, maximum tower floorplate and other design matters. Continued development of the Medical Center at Mission Bay would be consistent with development standards set forth in the MOU with the City of San Francisco for that site, which extended the CMPDG guidelines to the Medical Center site and modified them to include specific standards pertaining to building height, bulk, setbacks, stepbacks, streetwall height, view corridors, streetscapes, and signage.

UCSF design guidelines would ensure that the final building designs respond to the form of adjacent buildings (e.g., in terms of massing and height) and the overall urban context of the campus sites and surrounding neighborhoods. Because proposed buildings would be visually similar to existing uses on and adjacent to each respective campus site, they would not substantially degrade the visual character of the campus sites and surroundings.

Therefore, effects to the existing visual quality and character of UCSF's campus sites and their surrounding areas from implementation of the 2014 LRDP would be less than significant.

Mitigation: None required.

Impact AES-LRDP-3: Implementation of the 2014 LRDP could result in flood lighting during nighttime construction activities that would adversely affect nighttime views in the area. (Potentially Significant)

Although construction operations are generally expected to take place during the day, some activities could be conducted at night to reduce noise, vibration or other effects on daytime office or research uses. To enable construction at night, flood lighting would be required. The use of night lighting would have the potential to disturb residents in neighborhoods near construction sites, and potentially also affect nighttime views. Night lighting of construction sites would be temporary and would cease upon completion of construction. Campus-wide implementation of **Mitigation Measure AES-LRDP-1** would reduce the impact of nighttime work lighting to a less than significant level.

> **Mitigation Measure AES-LRDP-1:** UCSF shall require a condition in construction contracts that flood or area lighting for construction activities be placed and directed so as to avoid potential disturbances to adjacent residences or other uses.
>
> **Significance after Mitigation:** Less than Significant

Impact AES-LRDP-4: Implementation of the 2014 LRDP could create new sources of substantial light or glare that would adversely affect day or nighttime views in the area. (Potentially Significant)

Development proposed under the 2014 LRDP could increase ambient light levels due to light dispersion from the new buildings. Increases in night lighting could affect nighttime views on campus sites or in the surrounding neighborhoods. New light sources could include street lights, illuminated signage, exterior safety lighting and light emitted from building windows. Glare could be generated from reflective building materials. Because specific architectural features and building materials of the new buildings 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 AES-LRDP-2** would be implemented campus-wide 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.

> **Mitigation Measure AES-LRDP-2:** Minimize light and glare resulting from new buildings 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 City Planning Code sign standards for illumination and/or UCSF design guidelines.
> - 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

Impact AES-LRDP-5: Implementation of the 2014 LRDP could create street-level winds that could be hazardous to pedestrians in the area. (Potentially Significant)

Development proposed under the 2014 LRDP would have a significant effect if it would result in pedestrian-level wind speeds that exceed the hazardous level established by San Francisco Planning Code Section 148. While shorter buildings typically have little to no effect on the wind, unless they are very wide or are exposed on an open site, structures taller than 100 feet have the potential to alter wind speeds at ground level. Siting of large structures or large groups of structures can change wind flows by speeding up the wind at some locations and slowing it elsewhere in the vicinity. Large structures placed in a windy site can be expected to change or divert street-levels winds so as to alter the number and duration of Hazard Criterion exceedances. In general, implementation of **Mitigation Measure AES-LRDP-3** would reduce street-level wind impacts resulting from growth proposed by the 2014 LRDP to less than significant levels.

Discussion of site-specific wind effects resulting from implementation of the 2014 LRDP at the Parnassus Heights, Mission Bay and Mount Zion campus sites, where some LRDP proposals could exceed a height of 100 feet, is presented in Sections 6.1, 7.1 and 8.1, respectively.

> **Mitigation Measure AES-LRDP-3:** Proposed buildings that would exceed 100 feet in height shall be evaluated by a qualified wind consultant to determine the potential of the design to cause a wind hazard as defined in City Planning Code Section 148. If a hazard cannot be judged unlikely, the design shall be wind tested to verify compliance with the hazardous wind criterion of City Planning Code Section 148. Wind tunnel testing would provide site- and design-specific information pertaining to potential wind effects. Feasible means of eliminating or reducing wind hazards include modulating facades through architectural devices (e.g., articulation, variation of planes and building heights, etc.); incorporating building setbacks/terraces into building designs; and, landscaping in appropriate locations (e.g., using plantings to create wind screens). If preliminary wind testing indicates that the building design would increase pedestrian-level wind hazards, UCSF shall modify the proposed building or develop other measures to eliminate increases in hazardous pedestrian-level wind effects.
>
> **Significance after Mitigation:** Less than Significant

Impact AES-LRDP-6: Implementation of the 2014 LRDP could substantially reduce sunlight or significantly increase shadows in public open space areas. (Potentially Significant)

Development proposed under the 2014 LRDP could cast shadows on public open space under the control of the San Francisco Recreation and Park Department, which could potentially conflict with protection of such spaces as established by the City's Sunlight Ordinance (Section 295 of the Planning Code). Section 295 prohibits the issuance of building permits for structures or additions to structures greater than 40 feet in height that would shade property under the jurisdiction of or designated to be acquired by the Recreation and Park Commission, during the period from one hour after sunrise to one hour before sunset, unless the Planning Commission, following review and comment by the general manager of the Recreation and Park Department in consultation with the Recreation and Park Commission, determines that such shade would have an insignificant impact on the use of such property. Section 295 provides exceptions for buildings 40 feet or less in height and for buildings that replace shadow from previously existing structures. In general, implementation of **Mitigation Measure AES-LRDP-4** would reduce shadow impacts on public open space areas resulting from growth proposed by the 2014 LRDP to less than significant levels.

Discussion of site-specific shadow effects resulting from implementation of the 2014 LRDP at the Mount Zion campus site is presented in Section 8.1.

> **Mitigation Measure AES-LRDP-4:** UCSF shall assure that final building designs would not increase shadow on Recreation and Park Department property between one hour after sunrise and one hour before sunset, in such a way that the use of the property would be adversely affected.
>
> **Significance after Mitigation:** Less than Significant

5.2 Air Quality Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that none of the LRDP proposals would result in the creation of objectionable odors.

BAAQMD Plan-Level Impact Guidelines

The Bay Area Air Quality Management District (BAAQMD) has published Air Quality Guidelines that contain CEQA methodologies for addressing land use plan-level impacts, as well as addressing the impacts of subsequent individual projects. Most appropriate for evaluating the 2014 LRDP, the plan-level impact evaluation guidance identifies four topics for consideration:

- Criteria pollutants and precursor emissions
- Greenhouse gases
- Local community risks and hazards, and
- Odor impacts

The plan-level greenhouse gas impacts of the 2014 LRDP are addressed separately in Section 5.6 with respect to the Greenhouse Gas Reduction Strategy. The remaining topics, and the consistency with the 2010 Clean Air Plan for the San Francisco Bay Area Air Basin, are addressed below.

In addition, following the discussion of these three plan-level impact topics are impact discussions quantitatively addressing the total construction-related and operational emissions at all four campus sites that could result from implementation of the 2014 LRDP.

2014 LRDP Plan-Level Impacts

Impact AIR-LRDP-1: Implementation of the 2014 LRDP would be consistent with the primary goals of the Bay Area Clean Air Plan (CAP) and would not fundamentally conflict with the CAP because the LRDP demonstrates reasonable efforts to implement control measures contained in the CAP. (Less than Significant)

The most recently adopted air quality plan for the San Francisco Bay Area Air Basin is the 2010 Clean Air Plan (CAP). The 2010 CAP is a road map that demonstrates how the San Francisco Bay Area will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the 2010 Clean Air Plan, this analysis considers whether the project would: (1) support the primary goals of the CAP, (2) include applicable control measures from the CAP, and (3) avoid disrupting or hindering implementation of control measures identified in the CAP. 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 greenhouse gases 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 2010 Clean Air Plan includes 55 control measures aimed at reducing air pollution in the Air Basin.

The 2014 LRDP contains a number of new measures and broadens existing measures that would serve to support the primary goals of the CAP. Primary among these is the continued implementation and enhancement of UCSF's Transportation Demand Management program.

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 the city
- 18 City CarShare vehicles, along with 1,500 UCSF members who can use these vehicles by scheduling their use on-line
- A fleet of 43 low-emitting alternative-fuel and hybrid vehicles, including cars, shuttles, golf carts, and trucks
- 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, where members would have access to bicycles (and a regional network of stations) provided by the Bay Area Air Quality District (construction is dependent on the City's ability to secure additional funding for the program)
- Over 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 employees participate in the pretax transit program that has saved UCSF employees over $700,000 on public transit commute costs in 2013

Key Goals of the proposed LRDP that address reduced vehicle trip generation and are consistent with the goals of the CAP include:

- Enhance UCSF's Transportation Demand Management program and encourage its faculty, staff and students to use alternative modes of travel to driving alone to campus sites.
- Reduce congestion and truck deliveries to campus sites through transportation improvement measures.
- Direct, aesthetic, and experiential pedestrian connectivity is stressed in the UCSF 2010 Physical Design Framework and will be considered as buildings and open space are developed.
- The needs of pedestrians on public streets, particularly Parnassus Avenue at Parnassus Heights, Fourth Street at Mission Bay, and Sutter Street at Mount Zion, that pass through campus sites and have UCSF shuttle and Muni stops, are given the greatest consideration.

The campus sites' infill location and proximity to transit reduces the distance that students and patients would drive in motor vehicles. Also, the 2014 LRDP area is located in direct proximity to the nearby employment hubs. The Mission Bay Area is also designated as a priority development area with respect to the Sustainable Communities plan developed for the Bay Area pursuant to SB 375, a measure implemented to reduce emissions through the planning process.

Table 5-2 identifies those five categories of Transportation Control Measures (TCMs) that local agencies should implement through local plans to be considered in conformance with the 2010 CAP. A review of the TCM's in Table 5-2 indicates that these measures lend themselves to application to large-scale land use development projects and would be addressed by UCSF's TDM Program, which would apply to development under the LRDP.

TABLE 5-2
TRANSPORTATION CONTROL MEASURES IN THE 2010 CLEAN AIR PLAN

1.	Improve Transit Services (TCM A)
2.	Improve System Efficiency (TCM B)
3.	Encourage Sustainable Travel Behavior (i.e., voluntary employer-based trip reduction program)(TCM C)
4.	Support Focused Growth (Bicycle and Pedestrian friendliness) (TCM D)
5.	Implement Pricing Strategies (TCM E)

SOURCE: BAAQMD, 2010.

Because UCSF would continue to implement and expand transportation control measures consistent with the 2010 CAP, implementation of the 2014 LRDP proposals would not be considered to fundamentally conflict with the 2010 CAP and would be considered to have a less-than-significant air quality impact with regard to TCM implementation.

Mitigation: None required.

Impact AIR-LRDP-2: The 2014 LRDP would provide sufficient buffer distances between sensitive land uses and those land uses associated with toxic air contaminants (TACs) such as freeways, high traffic roadways and stationary sources. (Less than Significant)

The BAAQMD plan-level impact guidance recommends addressing localized exposure to TACs though provision of adequate buffers between sources and receptors. Exposure to TACs is a localized impact. These potential local impacts would occur from the implementation of one or more of the proposals listed in Section 5.0.4, above, and described in more detail in Chapter 3, *Project Description*. These potential local impacts are assessed quantitatively for each of the four campus sites, based on formal health risk assessments that consider the sources of TACs, their location with respect to new or proposed sensitive receptors and the prevailing meteorology of San Francisco.

The BAAQMD's *CEQA Air Quality Guidelines* include standards and methods for determining the significance of health risk impacts for new receptors introduced by a project. The method for determining health risk requires the review of health risk from permitted sources and major roadways in the vicinity of a project (i.e., within a 1,000-foot radius of the source), then adding the project impacts to determine whether the health risk thresholds for new receptors are exceeded.

As detailed in the impact analyses in Sections 6.2, 7.2, 8.2 and 9.2 of this EIR, the 2014 LRDP proposals would not result in exposure of sensitive receptors to substantial health risks or localized pollutant concentrations. Consequently, adoption of and development under the 2014 LRDP would provide sufficient buffer distances to ensure that sensitive receptors would not be exposed to substantial health risks or localized pollutant concentrations, and the impact would be less than significant.

Mitigation: None required.

Impact AIR-LRDP-3: Implementation of the 2014 LRDP proposals would provide sufficient buffer distances between sensitive land uses and sources of odors. (Less than Significant)

The proposed project would include residences at the Parnassus Heights and Mission Bay campus sites, which would be considered sensitive receptors with regard to existing odor sources. Residential housing currently exists at both of these campuses.

The BAAQMD identifies odor sources to include:

- Wastewater treatment plants;
- Landfills;
- Confined animal facilities ;
- Composting stations;
- Food manufacturing plants;
- Refineries; and
- Chemical plants.

There are no wastewater treatment plants, landfills, composting facilities, refineries, or chemical plants in the vicinity of either Parnassus Heights or the Mission Bay campus sites. Confined animal facilities exist at both the Parnassus Heights and Mission Bay campus sites. These are

enclosed facilities which are regularly inspected for sanitation and would not be a source of localized odor emissions associated with cattle ranching, zoos or other large-scale animal facilities with open air exposure.

There are no food manufacturing plants in the vicinity of the Parnassus Heights campus site, which is surrounded be residential uses. Land uses in the vicinity of the Mission Bay campus site may include boutique bakeries in the Dogpatch area to the southeast, but these are relatively small businesses that would do not generate the types of substantial odors that might be associated with large-scale cooking and processing. The Anchor Brewing Company operates a brewery on Mariposa Street, approximately one half mile to the west of the Mission Bay campus site.

Given that existing sensitive land uses presently exist at and around both campus sites, and the 2014 LRDP would maintain development consistent with present uses within the confines of each campus site, the 2014 LRDP would provide sufficient buffer distances between odor sources and receptors. Therefore, the impact associated with objectionable odors would be less than significant.

Mitigation: None required.

Impact AIR-LRDP-4: Implementation of the 2014 LRDP would result in increased emissions of criteria air pollutants during demolition and construction activities. (Potentially Significant)

Demolition, renovation and construction activities would result in emissions of criteria pollutants from the use of heavy-duty construction equipment, haul truck trips and vehicle trips generated from construction workers traveling to and from the demolition and construction sites. In addition, fugitive dust or PM_{10} emissions would result from demolition, excavation, trenching and other construction activities.

It is assumed that there would be no off-road equipment involved in building renovations and that air emissions would be generated solely by vendor trips bringing materials and construction worker trips.

Implementation of the open space and utility proposals at the Parnassus Heights campus site would require minimal construction equipment and would not be expected to contribute substantially to air emissions.

Demolition, construction and renovation emissions were calculated using the California Emissions Estimator Model (CalEEMod), by grouping construction activities into five- to six-year increments. The construction timeline for proposals is presented in Table 5-1. Modeling assumed construction phasing lengths based on CalEEMod default estimates, which are based on square footage for hospitals, research/office and child care uses and the number of dwelling units for housing. Because specific details of construction are not known, CalEEMod default estimates were also assumed for vendor trips, construction worker trips, and off-road equipment use. All model inputs and outputs are in Appendix E. **Table 5-3** presents the average annual daily construction emissions generated by the 2014 LRDP. Average daily emissions conservatively assume simultaneous construction of all

proposals under each window and are averaged over all the construction days (260 per year) for each window.

TABLE 5-3
ESTIMATED DAILY CONSTRUCTION EMISSIONS
WITHOUT MITIGATION, 2014 LRDP

Years	Estimated Emissions (lbs/day)			
	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
2015-2019	**80.86**	**89.52**	4.82	4.47
2020-2024	31.27	48.11	2.59	2.46
2025-2030	21.57	28.11	1.05	0.99
2031-2035	21.01	23.22	0.52	0.50
BAAQMD Considered Construction Threshold	54	54	82	54
Potential Significant Impact?	Yes	Yes	No	No

SOURCE: ESA (Appendix E)

BAAQMD's approach to analysis of construction-related particulate 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, campus-wide implementation of BAAQMD-identified Best Management Practices for control of fugitive dust, listed below as **Mitigation Measure AIR-LRDP-1**, would reduce impacts to less than significant levels.

Mitigation Measure AIR-LRDP-1: Best Management Practices for Controlling Particulate Emissions.

The following BAAQMD[4] Best Management Practices for particulate control will be required for all construction activities. 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

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.

[4] Bay Area Air Quality Management District, CEQA Air Quality Guidelines, Table 8-1, 2012.

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

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

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

8. Post a publically 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.

As can be seen in Table 5-3, estimated average daily construction-related exhaust emissions would not exceed the thresholds for particulate matter, but would exceed the NOx and ROG average daily thresholds during the 2015-2019 window if all proposals were to be constructed. While Table 5-3 indicates that these thresholds would not be expected to be exceeded during the subsequent time frames, because sequential phasing of construction projects at all campus sites cannot be assured, this impact would be significant and mitigation is identified to reduce the effects.

Mitigation Measure AIR-LRDP-2: Architectural Coatings.

ROG emissions from the use of architectural coatings shall be reduced by implementing either or both of the following measures if total emissions of ROG exceed 54 pounds per day on average over the construction period:

- Architectural coatings shall be applied over the course of 4 months or longer, in order to reduce daily ROG emissions to below the significance threshold.
- A minimum of 67% of exterior building materials shall be prefinished to reduce ROG emissions.

Mitigation Measure AIR-LRDP-3: Off-Road Equipment Control Measures for NOx.

- All off-road equipment greater than 25 hp and operating for more than 20 total hours over the duration of construction activities shall <u>have engines that meet or exceed U.S. EPA Tier 3 off-road emission standards.</u> ~~meet the following requirements that will not be fully implemented via regulation until 2018 (i.e., the equipment is available for purchase or rental at present but its use not mandated throughout all fleets until 2018):~~

- ~~a. All off-road equipment shall have:~~
  - ~~i. Engines that meet or exceed either U.S. EPA Tier 3 off-road emission standards, or~~
  - ~~ii. Engines that are retrofitted with an ARB Level 3 Verified Diesel Emissions Control Strategy (VDECS).~~

Significance after Mitigation: Significant and Unavoidable. Mitigation Measure AIR-LRDP-1: Best Management Practices for Controlling Particulate Emissions will be required for all construction activities to reduce those impacts to less than significant. **Mitigation Measure AIR-LRDP-2: Architectural Coatings** would reduce average daily construction emissions of ROG to less than 54 pounds per day of ROG. **Mitigation Measure AIR-LRDP-3: Off-Road Equipment Control Measures for NOx** would reduce average daily NOx emissions during building construction, but NOx would still exceed the 54 pound per day threshold. For that reason, the impact of increased emissions of criteria air pollutants during demolition and construction activities would be significant and unavoidable.

Impact AIR-LRDP-5: Implementation of the 2014 LRDP would result in increased emissions of criteria air pollutants during operation. (Potentially Significant)

Implementation of the 2014 LRDP would result in an increase in criteria air pollutant and precursor emissions, including ROG, NOx, PM_{10} and $PM_{2.5}$ from a variety of emissions sources, including onsite area sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) and mobile on-road sources. Operational emissions of criteria pollutants were estimated using the CalEEMod version 2013.2.2 emissions inventory model.

One of the sources of operational emissions would be increased vehicle emissions from additional staff, patients, visitors and residents. Traffic volumes used to estimate vehicle-related emissions were derived from the Transportation Demand Analysis prepared for the 2014 LRDP (Adavant, 2014). Implementation of the 2014 LRDP would generate an estimated 14,412 additional daily vehicle trips. In addition to exhaust emissions, vehicles would also generate PM_{10} and $PM_{2.5}$ from entrained road dust and tire and brake wear.

Emissions would also be generated by natural gas combustion, operation of landscape maintenance equipment, and maintenance application of paint and other architectural coatings.

Table 5-4 presents estimated operational emissions at the LRDP horizon in 2035. As Table 5-4 shows, without mitigation, operational emissions of NOx and ROG would exceed threshold levels, resulting in a significant impact. The primary contributing sources to ROG emissions would be the use of consumer products associated with over 2 million square feet of development, while for NOx emissions, the primary sources are vehicle emissions and natural gas combustion, primarily at the Mission Bay campus site.

Mitigation Measure AIR-LRDP-4: BAAQMD-Suggested Operational Measures.

The following measures identified in the 2012 BAAQMD *CEQA Guidelines* shall be considered for implementation for site-specific development projects if not already in place:

- Provide and maintain secure bike parking (at least one space per 20 vehicle spaces);
- Provide and maintain showers and changing facilities for employees;

TABLE 5-4
ESTIMATED OPERATIONAL EMISSION INCREASES AT LRDP HORIZON YEAR, 2035

Air Pollutant	Estimated Emissions (lbs/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Parnassus Heights campus site	6.34	8.36	2.85	1.28
Mission Bay campus site	130.4	74.40	68.26	21.20
Mount Zion campus site	9.82	7.64	5.66	1.67
Mission Center campus site	3.76	2.94	2.87	0.84
Total	**177.98**	**93.36**	79.64	24.99
Regional Significance Threshold	54	54	82	54
Significant Impact?	Yes	Yes	No	No

SOURCE: ESA, 2014 (see Appendix E).

- 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 NOx 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 NO_x related to natural gas combustion);
- Adopt policies supporting infill development;
- Create and enhance landscaped greenway, trail, and sidewalk connections between neighborhoods, commercial areas, activity centers, and parks; and
- Ensure that proposed land uses are supported by a multi-modal transportation system and that the land uses themselves support the development of the transportation system.

Significance after Mitigation: Significant and Unavoidable. Trip generation 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 assumptions.

Mitigation Measure AIR-LRDP-4 would not result in the 78% reduction necessary (for ROG) or 41% (for NOx) to reduce the impact to a less-than-significant level. This amount of traffic reduction exceeds the best reduction estimates for TDM programs (BAAQMD, 2012b). **Table 5-5** presents emissions assuming a conservative 12% reduction in vehicle miles travelled associated with TDM measures (CAPCOA, 2010). As can be seen from

TABLE 5-5
ESTIMATED MITIGATED OPERATIONAL EMISSION INCREASES AT LRDP HORIZON YEAR, 2035

Air Pollutant	Estimated Emissions (lbs/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Parnassus Heights campus site	6.34	8.36	2.85	1.28
Mission Bay campus site	126.8	62.68	59.89	18.47
Mount Zion campus site	9.41	6.89	4.99	1.48
Mission Center campus site	3.61	2.65	2.53	0.74
Total	**146.16**	**80.58**	70.26	21.97
Regional Significance Threshold	54	54	82	54
Significant Impact?	Yes	Yes	No	No

Table 5-5, emissions of ROG and NOx would still exceed thresholds. Consequently, development under the 2014 LRDP with implementation of feasible mitigation measures would still result in significant environmental effects on air quality and contribute substantially to an existing air quality violation (ozone precursors). Therefore, even with implementation of Mitigation Measure AIR-LRDP-4, the impact would remain significant and unavoidable for emissions of ROG and NOx.

NOx and ROG emissions are a concern as ozone precursors. The health implications of this significant impact would result from the potential to contribute to increased violations of the air quality standards for ozone. As indicated in Table 4.2-1, state and federal standards for ozone have not been exceeded in the past five years of monitoring in San Francisco, so the degree to which a proposal would substantially contribute to a future violation of the ozone standard would be expected to be minimal. Further, the extent to which these significant ozone precursor emissions would result in adverse health effects is not readily quantifiable on a local scale because "by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards" (BAAQMD, 2011).

2014 LRDP Development Site-Specific Impacts

Impact AIR-LRDP-6: Implementation of the 2014 LRDP would result in increased emissions of toxic air contaminants that could increase health risks for nearby residents during demolition and construction activities. (Less than Significant)

Construction activities under the 2014 LRDP would produce diesel particulate matter (DPM) and $PM_{2.5}$ emissions due to combustion equipment such as loaders, backhoes, and cranes, as well as haul truck trips. These emissions could result in elevated concentrations of DPM and $PM_{2.5}$ at nearby receptors (both new and existing residences and schools). Hospitals are also considered sensitive receptors but the duration of exposure would be substantially less than that assumed for residential receptors and the resulting risk would therefore be less. These elevated concentrations could lead to an increase in the risk of cancer or other health impacts.

TACs do not have ambient air quality standards, but are regulated by BAAQMD using a risk-based approach based on recommended methodology of the state Office of Environmental Health Hazard Assessment, which has been adopted by BAAQMD. Consequently, a health risk assessment of the development proposals was performed to determine the extent of increased cancer risks and hazard indices at the maximally exposed receptors. The cancer risk to residential receptors assumes exposure occurs 24-hours per day for 350 days per year. Cancer risk to residential receptors is based on the exposure for the duration of the construction period. These cancer risk estimates also incorporate age sensitivity factors (ASFs). This approach provides updated calculation procedures that factor in the increased susceptibility of infants and children to carcinogens as compared to adults. For estimating cancer risks for residential receptors over a 70 year lifetime, the incorporation of the ASFs results in a cancer risk adjustment factor of 1.7.

A summary of the construction-related health impacts related to implementation of the 2014 LRDP at the four campus sites is presented in **Table 5-6**. Detailed assumptions, methodology for the health risk assessment and results are included in the impact analyses in Sections 6.2, 7.2, 8.2 and 9.2 and Appendix E of this EIR. As shown in Table 5-6, construction-related health risks and hazards would be less than significant for each campus location.

TABLE 5-6
SUMMARY OF 2014 LRDP CONSTRUCTION-RELATED HEALTH IMPACTS

Receptor Type	Cancer Risk (per million) persons	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Parnassus Heights Campus Site				
New Residence (adult / child)	0.05/0.59	<0.01	<0.01	<0.01
School Children	0.02	<0.01	<0.01	<0.01
Existing Residence (adult / child)	0.03 / 0.29	<0.01	<0.01	<0.01
Mission Bay Campus Site				
New Residence (adult / child)	0.63 / 7.11	0.01	0.08	0.07
School Children	0.35	0.01	0.01	0.03
Existing Residence (adult / child)	0.73 / 8.21	0.01	0.17	0.05
Mount Zion Campus Site				
School Children	0.01	0.01	0.01	0.01
Existing Residence (adult / child)	0.05 / 0.54	0.01	0.01	0.01
Mission Center Campus				
School Children	0.04	0.01	0.01	0.01
Existing Residence (adult / child)	0.64 / 7.19	0.02	0.21	0.08
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KB Environmental Sciences, Inc., 2014.

Each campus site also operates fume hoods that emit TACs. These fume hood emissions do not require a permit from BAAQMD based on the operating throughput and therefore have not been assigned an existing risk value in BAAQMD databases like permitted sources. However, UCSF maintains an inventory of chemical throughput for each campus site and has prepared health risk assessments relative to fume hood emissions at its major campus locations (Parnassus Heights and Mission Bay). The potential for adverse health risk associated with fume hood emissions under the LRDP is assessed separately for each campus site in Sections 6.2, 7.2, 8.2 and 9.2. The relative risk from fume hoods is not a substantial contribution compared to other existing sources.

Implementation of the proposed 2014 LRDP would result in localized increases in TACs at each campus site from increased daily vehicle trips which are assessed individually for each campus site in Sections 6.2, 7.2, 8.2 and 9.2. Potential localized risk increases from new diesel generators are also addressed in these sections.

References

Adavant Consulting, Travel Demand Analysis Four Campus Summary: Existing & 2035, February, 2014.

BAAQMD, *CEQA Air Quality Guidelines*, May 2012, www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines%20May%202011.ashx; p. C-16.

California Air Pollution Control Officers Association, CAPCOA, *Quantifying Greenhouse Gas Mitigation Measures, A Resource for Local Governments to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, August 2010.

5.3 Biological Resources Impacts of the 2014 LRDP

Impact BIO-LRDP-1: Implementation of the 2014 LRDP could 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)

A comprehensive list of the special-status plant and animal species that may occur or have the potential to occur within the San Francisco North and San Francisco South U.S. Geological Survey quadrangles, which include all UCSF campus sites with 2014 LRDP proposals, was developed based on data obtained from the California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS) Electronic Inventory, the U.S Fish and Wildlife Service (USFWS) and other biological literature pertaining to the bioregion (see Tables 4.3-1 and 4.3-2 in Section 4.3).

Most of the species identified within these quadrangles are associated with specific habitat types, such as dunes, valley foothill grasslands, chaparral, coastal prairie, coastal bluff scrub, marshes and swamps. None of these habitats is present at the four main campus sites.

Most special-status plant species are considered to have a low potential to occur at the four main campus sites due to the developed nature of these locations. This estimation is supported by the lack of native plants and supportive native vegetation communities, and based on the disturbed and heavily managed condition of the campus sites. Although the Parnassus Heights campus site includes the Mount Sutro Open Space Reserve (Reserve), the potential for rare plant species in the Reserve is considered low because the vegetation communities that would support rare plants, such as coastal salt marsh, coastal prairie, valley and foothill grasslands, coastal dunes, and coastal scrub are not prevalent there.

Aside from breeding birds, special-status wildlife species are not likely to occur within the campus sites because most of these areas are highly fragmented and paved or dominated by non-native ornamental or ruderal species, which have poor habitat attributes for wildlife.

Sensitive species habitat in the vicinity of the Mission Bay campus site is associated with the San Francisco Bay and the China Basin channel. Development proposed at this campus site would not be located on or near aquatic habitat or directly affect aquatic habitat and water-dependent, special-status species that may be present in the China Basin channel.

The CNDDB documents three special-status plant species within one mile of the Mount Zion campus site: Franciscan manzanita (*Arctostaphylos franciscana*), Presidio Manzanita (*Arctostaphaylos Montana* ssp. *ravenii*) and Marin western flax (*Hesperolinon congestum*). None of these species are expected to occur there due to lack of suitable habitat and lack of historic presence.

Monarch butterflies (*Danaus plexippus*) have been known to overwinter in eucalyptus groves of San Francisco and the foliage-roosting western red bat has been documented in Golden Gate Park. Parnassus Heights is the only UCSF campus site with suitable habitat for overwintering monarch aggregations; however, there are no records of such activity within the Reserve. The western red bat and Yuma myotis may potentially occur in forest edge habitat of the Reserve. Suitable roosting habitat for these bats includes tree foliage, underneath the exfoliating bark of trees and in tree cavities. The western red bat has been known to roost in the Strybing Arboretum of Golden Gate Park within 0.5 mile of the Parnassus Heights campus site.

Construction and demolition proposals, as well as open space and utilities activities within and near the Reserve at the Parnassus Heights campus site could have potentially adverse impacts on special-status wildlife and plant species in the Reserve. Discussion of biological resources and potential impacts resulting from implementation of the 2014 LRDP at the Parnassus Heights campus site is presented in Section 6.3.

2014 LRDP proposals at the Mission Bay, Mount Zion or Mission Center campus sites would not 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 CDFW or USFWS.

Mitigation: None required.

Impact BIO-LRDP-2: Implementation of the 2014 LRDP would not 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 the U.S. Fish and Wildlife Service. (Less than Significant)

Implementation of 2014 LRDP proposals would occur at already developed campus sites within an urban setting. Small areas of oak woodland, eucalyptus forest, montane hardwood, non-native annul grassland, lacustine, riparian and freshwater emergent wetland habitat, are present within the City, but not at or in the vicinity of the campus sites for which proposals are included under the 2014 LRDP.

The CNDDB reports no sensitive natural community occurrences for the two-quadrangle area containing and surrounding the 2014 LRDP planning area (CDFW, 2014). 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 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. Proposals under the 2014 LRDP are not located within designated critical habitat for any federally listed species.

Development proposed under the 2014 LRDP would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations. The impact would be less than significant.

Mitigation: None required.

Impact BIO-LRDP-3: Implementation of the 2014 LRDP would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. (No Impact)

Development proposed under the 2014 LRDP would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means because there are no jurisdictional or non-jurisdictional wetlands mapped or identified on UCSF campus sites. No impact would occur.

Mitigation: None required.

Impact BIO-LRDP-4: Implementation of the 2014 LRDP 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. (Potentially Significant)

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 Mount Sutro Open Space Reserve on the Parnassus Heights campus site during their fall and spring migrations. Both the Mission Bay and Parnassus Heights campus sites offer suitable and attractive habitat for birds to forage and rest along this migration route.

Bird flights close to man-made structures are at risk of collisions with such structures. Direct effects on migratory as well as resident birds moving through an area could include death or injury if birds collide with lighted structures or other birds attracted to the light, as well as collisions 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). It is estimated that, in North America alone, millions of songbirds are killed due to collisions with buildings and other structures each year (Lochhead, 2008). Collisions are currently recognized as one of the leading causes of bird population declines worldwide (Brown et al., 2007).

Daytime collisions occur most often when birds fail to recognize window glass as a barrier. Regardless of overall height, the ground floor and first few stories of buildings present the greatest hazards to most birds; reflections of attractive ground-level features like vegetation draw birds toward glass surfaces and often result in collisions. Recent increases in glass surfaces used to provide more natural light to building interiors can be considered a “biologically significant” issue, potentially affecting the viability of local and regional bird populations (New York Audubon Society, 2007). The San Francisco Planning Department adopted *Standards for Bird-Safe Buildings* in 2011, adding Planning Code Section 139 (San Francisco Planning Department, 2011). However,

as discussed in Section 4.3.2.2 *Applicable Local Plans and Policies*, property owned or leased by the University that is used in furtherance of the University's educational purposes is not subject to local land use regulation, including *San Francisco General Plan* policies regarding protection of biological resources. Nonetheless, an increase in avian collisions attributed to 2014 LRDP proposals at the Parnassus Heights and Mission Bay campus sites would be a significant impact.

Implementation of **Mitigation Measure BIO-LRDP-1: Bird Safe Building Treatments** would reduce potential adverse effects on resident and migrating birds to a less than significant level by requiring design features be incorporated into proposals at the Parnassus Heights and Mission Bay campus sites that would make buildings more visible to birds.

Mitigation Measure BIO-LRDP-1: Bird-Safe Building Treatments.

- 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

Mitigation: None required.

Impact BIO-LRDP-5: Implementation of the 2014 LRDP would not conflict with any applicable policies protecting biological resources. (No Impact)

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 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.

Regarding City policies applicable to potential 2014 LRDP effects on birds, 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.[5]

[5] 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.

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."[6] 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.

As noted above under Impact BIO-LRDP-4, UCSF will adopt mitigation that is generally consistent with the City's *Standards for Bird-Safe Buildings* for new construction proposed under the 2014 LRDP. However, as noted above, UCSF is not subject to local policies protecting biological resources. Thus, no conflict would result and no impact would occur.

Mitigation: None required.

Impact BIO-LRDP-6: Implementation of the 2014 LRDP would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other applicable habitat conservation plan. (No Impact)

There are no adopted habitat conservation plans, natural community conservation plans or other applicable habitat conservation plans that would be applicable to the 2014 LRDP or any of the proposals included under the LRDP. No impact would occur.

Mitigation: None required.

Impact BIO-LRDP-7: Implementation of the 2014 LRDP would not 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. (Less than Significant)

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 and are either 20 feet or greater in height, 15 feet or greater in canopy width, or 12 inches or greater in

[6] The "bird collision zone" is that portion of the building that begins at grade and extends upward for 60 feet.

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. Proposals under the 2014 LRDP are not expected to affect protected trees; therefore, the impact would be less than significant.

Mitigation: None required.

References

Brown, H., Caputo, S., McAdams, E.J., Fowle, M., Phillips, G., Dewitt, C., Gelb, Y, 2007. *Bird Safe Building Guidelines*, New York City Audubon Society www.nycaudubon.org/pdf/BirdSafeBuildingGuidelines.pdf.

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.

New York Audubon Society, 2007. *Bird Safe Building Guidelines*, http://www.nycaudubon.org/pdf/BirdSafeBuildingGuidelines.pdf.

5.4 Cultural Resources Impacts of the 2014 LRDP

Impact CUL-LRDP-1: Implementation of the 2014 LRDP could result in a substantial adverse change in the significance of historical resources as defined in CEQA Guidelines Section 15064.5. (Potentially Significant)

Renovation activities proposed under the 2014 LRDP could result in adverse changes to historical resources or eligible resources as designated by the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). Under CEQA, a cultural resource is considered significant if it is at least 45 years old and meets any of the criteria listed by the CRHR. The fact that a resource is not listed in, or determined to be eligible for listing the CRHR, not included in a local register of historic resources, or identified in a historical resources survey does not preclude a lead agency from determining based on substantial evidence that the resources may be an historical resource (CEQA Guidelines Section 15064.5(a)(4)). Listing of a property in the NRHP or CRHR does not prohibit demolition or alteration of that property, but does denote that the property is a resource worthy of recognition and protection.

Public Resources Code Section 5020.1 and CEQA Guidelines Section 15064.5(b)(1) define a significant effect as one that would materially impair the significance of a historical resource. Alteration in an adverse manner of the physical characteristics of a historical resource that conveys its historical significance would be considered a significant impact under CEQA. Generally, a project that follows the Secretary of the Interior's guidelines for historic buildings would be considered mitigated to a less than significant level, according to CEQA Guidelines Section 15064.5(b)(3). Implementation of Mitigation Measure **CUL-LRDP-1** would reduce impacts to a less than significant level.

> **Mitigation Measure CUL-LRDP-1:** Before altering or otherwise affecting a building or structure 50 years old or older, the campus shall retain a qualified architectural historian to record it on a California Department of Parks and Recreation DPR 523 form. Its significance shall be assessed by a qualified architectural historian, using the significance criteria set forth for historic resources under CEQA Guidelines Section 15064.5. For historic buildings, structures or features that do not meet the CEQA criteria for historical resource, no further mitigation is required and the impact is less than significant.
>
> For a building or structure that qualifies as a historic resource, the architectural historian and UCSF shall consider measures that would enable the project to avoid direct or indirect impacts to the building or structure. These could include project redesign or other measures that would avoid altering the building. All rehabilitation work of an historic building or structure shall be conducted in compliance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*, to the extent feasible. Alterations to cultural landscapes shall be conducted in compliance with the *Secretary of the Interior's Guidelines for Rehabilitating Cultural Landscapes*.
>
> **Significance after Mitigation:** Less than Significant. If it is not feasible to meet the Secretary's Standards, this impact could be a significant and unavoidable impact.

Impact CUL-LRDP-2: Implementation of the 2014 LRDP could result in demolition of historical resources as defined in CEQA Guidelines Section 15064.5. (Potentially Significant)

Demolition activities proposed under the 2014 LRDP could result in the loss of historical resources or eligible resources as designated by the NRHP or the CRHR, which would be considered a significant impact under CEQA. Although mitigation is available to reduce the impact, it would not reduce effects to a less than significant level. As noted in CEQA Guidelines Section 15126.4 (b)(2), documentation of an historical resource by way of historic narrative, photographs, or architectural drawings as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur.

> **Mitigation Measure CUL-LRDP-2:** If a significant historic building or structure is proposed for substantial alteration or demolition, UCSF shall ensure that a qualified architectural historian thoroughly documents the 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 Building Survey or Historic American Engineering Record, 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. A copy of the record shall be archived with the UCSF archives, the History Room of the San Francisco Public Library, the Northwest Information Center at Sonoma State University, and the San Francisco Planning Department.
>
> UCSF shall install interpretive materials at or near the site to enhance public awareness in the form of a historical marker, kiosk, or other display that contains historical photos and text about the building's historical significance.
>
> **Significance after Mitigation:** Significant and Unavoidable

The 2014 LRDP proposes to demolish existing buildings at the Parnassus Heights and Mount Zion campus sites. Two of these buildings, Surge at Parnassus Heights and Hellman at Mount Zion, are considered historical resources for CEQA purposes. The 2014 LRDP proposes to renovate and reuse UC Hall, Millberry Union towers and Moffitt Hospital on the Parnassus Heights campus site, and the Main Hospital on the Mount Zion campus site. Both UC Hall and Millberry Union towers are considered historical resources under CEQA. Saunders Court at the Parnassus Heights campus site is proposed to be renovated under the 2014 LRDP. It is considered a significant cultural landscape and presumed to be a historical resource for CEQA purposes. The Mount Sutro Open Space Reserve is considered an historic landscape. Three new trails through the Reserve are proposed by the 2014 LRDP.

Discussion of potential effects to historical resources resulting from identified 2014 LRDP demolition, renovation and open space proposals at the Parnassus Heights and Mount Zion campus sites is presented in Sections 6.4 and 8.4, respectively.

Impact CUL-LRDP-3: Implementation of the 2014 LRDP could result in a substantial adverse change to archaeological resources. (Potentially Significant)

Previous studies and archival research conducted for UCSF have not identified archaeological resources at the Parnassus Heights, Mission Bay or Mount Zion campus sites. Mission Bay is the only campus site near a watercourse or water body, which is where archaeological resources are frequently discovered. However, the Mission Bay area has been substantially altered over time, including the large amount of fill added along the shoreline; therefore, the likelihood of discovering archaeological resources is low. Additionally, these campus sites have been extensively modified over time, and the likelihood of discovering archaeological resources would thus be low. In the unlikely event that archaeological artifacts are discovered during construction at the Parnassus Heights, Mission Bay or Mount Zion campus sites (including grading, excavation, and other earthmoving activities), the following mitigation measure would be implemented:

> **Mitigation Measure CUL-LRDP-3:** Should an archaeological artifact be discovered during project construction and excavation, pursuant to CEQA Guidelines 15064.5 (f), "provisions for historical or unique archaeological resources accidentally discovered during construction" shall be instituted. In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 100 feet of the resources shall be halted and UCSF shall consult with a qualified archaeologist or paleontologist to assess the significance of the find (per Public Resource Code Section 5024.1, Title 14 CCR, Section 4852 and/or Public Resource Code 21083.2 in the event of a unique archaeological find). If any find is determined to be significant and will be adversely affected by the project, representatives of UCSF and the qualified archaeologist and/or paleontologist shall meet to determine the appropriate avoidance measures or other appropriate mitigation (per CEQA Guidelines 15064.5 (b) and Public Resource Code 21083.2). All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and documented by the qualified archaeologist according to current professional standards (per the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR44716)).
>
> **Significance after Mitigation:** Less than Significant

Prehistoric and historic period occupation of the Mission Center campus site suggests a high sensitivity to contain significant archaeological deposits and/or features from both prehistoric and historic-period use and occupation. For discussion of potential impacts to archaeological resources at the Mission Center campus site see Section 9.4.

Impact CUL-LRDP-4: Implementation of the 2014 LRDP could result in a substantial adverse change to paleontological resources. (Potentially Significant)

Review of geological maps and previous analysis suggests that there are no unique paleontological resources or unique geologic features at any campus site. In the event that

paleontological resources are uncovered during the course of construction, implementation of **Mitigation Measure CUL-LRDP-3** would reduce impacts to a less than significant level.

> **Mitigation Measure CUL-LRDP-4:** If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, all ground disturbing activities within 50 feet of the find shall be halted until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate salvage measures in consultation with UCSF and in conformance with Society of Vertebrate Paleontology Guidelines (SVP, 1995; SVP, 1996).
>
> **Significance after Mitigation:** Less than Significant

Impact CUL-LRDP-5: Implementation of the 2014 LRDP could result in a substantial adverse change to human remains. (Potentially Significant)

There are no known human remains, including those interred outside of formal cemeteries, located at any campus site. In the event of an accidental discovery or recognition of human remains during project excavation and construction, the following mitigation measure would be implemented:

> **Mitigation Measure CUL-LRDP-5:** If the discovery includes human remains, CEQA Guidelines 15064.5 (e)(1) shall be followed:
>
> In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken:
>
> (1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
>
> (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and
>
> (B) If the coroner determines the remains to be Native American: (1) the coroner shall contact the Native American Heritage Commission within 24 hours. (2) The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. (3) The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or
>
> (2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.
>
> (A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission.

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

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

Significance after Mitigation: Less than Significant

5.5 Geology, Soils and Seismicity Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that there are no expansive soils on the Parnassus Heights, Mission Bay, Mount Zion or Mission Center campus sites. Therefore, no impact regarding expansive soils would result from implementation of the 2014 LRDP.

The Initial Study also determined that implementation of the 2014 LRDP would not result in the installation of septic tanks or alternative wastewater disposal systems. Therefore, no impacts regarding septic tanks or alternative wastewater disposal systems would result from implementation of the 2014 LRDP.

Impact GEO-LRDP-1: Implementation of the 2014 LRDP could result in adverse effects to people and structures resulting from geologic hazards. (Less than Significant)

Building demolitions under the 2014 LRDP would be essentially unaffected by geologic hazards, while renovation and reuse of existing buildings and all new construction activities could be strongly affected. The four campus sites where development is proposed under the 2014 LRDP are located in a seismically active region that could experience at least one major earthquake (Richter magnitude (M) 6.7 or higher) over the next 30 years. Strong ground shaking at these campus sites could occur during a moderate to severe earthquake occurring on one of the active Bay Area faults near the campus sites.

As described in Section 4.5.2, *Regulatory Considerations,* construction of proposed buildings would require design, site preparation and foundation construction in accordance with the most current version of the California Building Code as well as 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.* Geotechnical review would include evaluation of slope stability hazards as required by building code requirements. Renovation of existing buildings also would be required to adhere to all applicable seismic requirements as contained in the most recent version of the California Building Code and UC *Policy on Seismic Safety.*

The Mission Bay campus site is within a California Geologic Survey (CGS) Seismic Hazard Zone and the City's Special Geologic Study Area for potential ground failure hazards caused by liquefaction and would therefore be subject to Special Publication 117A. Special Publication 117A includes protocols for the identification of potentially liquefiable materials as well as appropriate requirements to minimize potential damage from liquefaction (e.g., use of edge containment structures, removal of liquefiable soils, dynamic consolidation, injection grouting, etc.).

In general, the Mission Bay campus site contains conditions that present a number of potential geologic hazards including groundshaking, liquefaction, settlement, and differential settlement

largely due to the presence of the underlying materials (i.e., varying thicknesses of loose artificial fill, Bay Mud, older marine clays, and sandy alluvium) (Treadwell & Rollo, 1995). If not addressed appropriately in site preparation and design, the presence of heterogeneous fill materials including building debris, soft compressible Bay Mud, and loose saturated soils would make new structures susceptible to damage from dynamic (earthquake) or static (slow compression of Bay Muds) forces. However, these hazards are commonplace in areas throughout the Bay margins and, as stated above, current code requirements and design practices such as the use of deep foundation systems are effective in reducing potential impacts. Therefore, construction and design in accordance with the most recent version of the California Building Code and CGS Special Publication 117A would reduce potential geotechnical hazards to less than significant levels.

According to the CGS, the Mission Center campus site is also located within a Seismic Hazard Zone for liquefaction indicating a high potential for the presence of soils that could be susceptible to the effects of liquefaction during an earthquake (ABAG, 2014). Due to the location of the site within the seismic hazard zone for liquefaction, construction at the Mission Center campus site would be required to be in compliance with Special Publication 117A which includes measures on the identification and appropriate mitigation of any identified liquefaction hazards. Adherence to these existing regulatory requirements would ensure that seismic hazards are reduced to less than significant levels.

The University's *Policy on Seismic Safety* 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 policy requires that new University construction comply with the most stringent seismic building requirements, where they are embodied in the California Building Code or in local regulations. Adherence to this policy as well as other regulatory requirements described in Section 4.5, *Geology, Soils and Seismicity*, would reduce impacts to less than significant levels.

The proposed improvements to the streetscape of Parnassus Avenue on the Parnassus Heights campus site present low risk in terms of their seismic vulnerability, however they would nonetheless be subject to building code requirements, where applicable, as well as City of San Francisco Department of Public Works regulations that would ensure that proven geotechnical preparations and design would reduce potential seismic impacts to less than significant levels.

Finally, 2014 LRDP utilities improvements on the Parnassus Heights campus site and their associated connections to new and existing buildings are required to adhere to regulatory requirements that include measures such as flexible connections that minimize the potential for damage in the event of a substantial earthquake. The improvements are designed to address or eliminate any existing seismic deficiencies.

Mitigation: None required.

Impact GEO-LRDP-2: Implementation of the 2014 LRDP could result in substantial soil erosion or loss of topsoil. (Less than Significant)

The 2014 LRDP demolition of existing structures and new construction activities could expose underlying soils, while renovation and reuse of existing buildings would have essentially no effect. If not managed appropriately, exposed soils could be subject to the effects of wind and water erosion. However, all construction and demolition activities would be required to adhere to best management practices that include appropriate erosion control measures; wind erosion controls are prescribed by BAAQMD construction dust control mitigation measures (described above in Section 5.1.2) and water erosion controls are prescribed by NPDES requirements. Projects sites greater than 1 acre are subject to the National Pollutant Discharge Elimination System (NPDES) and would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) as part of the Construction General Stormwater Permit. The SWPPP specifies Best Management Practices designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off-site into receiving waters. UCSF is also considered a Municipal Separate Storm Sewer System as of 2013. This designation requires UCSF to develop, implement and enforce a Storm Water Management Plan/Program (SWMP) by July 2016 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. In addition, by July 2015 UCSF projects that create and/or replace 2,500 square feet of impervious surface must include design measures to reduce runoff and low-impact design standards. Construction activities at the Mission Bay campus site would also be conducted in accordance with the Risk Management Plan developed for the campus which addresses measures to minimize erosion and any offsite transport of sediment due to potential legacy contaminant issues. Adherence to these and other regulatory requirements described in Section 4.8, *Hydrology and Water Quality*, would reduce water quality impacts to less than significant levels and the construction mitigation measures in Section 5.1.2, *Air Quality*, would reduce wind erosion impacts to less than significant levels.

The 2014 LRDP installation of the proposed changes to the utilities and infrastructure including the replacement of the underground storage tanks would involve ground disturbing activities which could expose soils to the effects of wind and water erosion. However, all proposed construction activities would be required to adhere to best management practices that protect any exposed soils from erosion. Once construction is complete, all trenches and other areas of excavation would be covered by asphalt, concrete, or vegetated landscaping that would protect soils from the effects of erosion. Therefore, potential impacts related to the utilities and infrastructure projects would be less than significant.

Mitigation: None required.

References

Association of Bay Area Governments, San Francisco Bay Area Hazards-Liquefaction Susceptibility map, http://quake.abag.ca.gov/earthquakes/#LIQUEFACTION, 2014.

5.6 Greenhouse Gas Emissions Impacts of the 2014 LRDP

As part of implementing the UC *Policy on Sustainable Practices*, UCSF has developed a Climate Action Plan, a long-term strategy for voluntarily meeting the State of California's goal for reducing greenhouse gas (GHG) emissions to 1990 levels by 2020, pursuant to the *California Global Warming Solutions Act of 2006* (AB 32). In addition, as part of the 2014 LRDP, UCSF proposes a GHG Reduction Strategy to provide streamlined analysis under CEQA for future development projects.

The purpose of developing a "qualified" GHG reduction strategy is to ensure adequate CEQA coverage (under the streamlining provisions of CEQA Guidelines Section15183.5) of GHG analyses for UCSF's 2014 LRDP and future development activities through 2020, and provide the framework for continued CEQA coverage after 2020.

The essential requirements of a qualified greenhouse gas reduction strategy, under CEQA Guidelines Section 15183.5 and as interpreted by BAAQMD[7], include:

- Establish a baseline GHG inventory for 2008 or earlier using accepted accounting protocols;
- Establish a business-as-usual GHG forecast for 2020 based on reasonable assumptions;
- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the strategy would not be cumulatively considerable;
- Specify GHG reduction measures and performance standards that, when implemented on a project-by-project basis, will collectively achieve the specified emissions target;
- Establish a mechanism to monitor the plan's progress toward achieving the target and to require amendment if the plan is not achieving specified levels; and
- Adopt in a public process following environmental review.

UCSF's existing Climate Action Plan (CAP), dated December 2009, meets many but not all of these requirements. It establishes a 1990 baseline, which in turn informs the 2020 target (consistent with AB 32 and UC Regents policy), forecasts emissions to 2020 and includes a comprehensive set of prescriptive GHG reduction measures. However, the CAP was not adopted in a public process, and it does not include a clear monitoring plan for tracking GHG emissions reductions and adjusting the CAP over time to meet the 2020 target. Also, the CAP does not look beyond 2020 in terms of GHG emissions projections, targets and reduction strategies, whereas the 2014 LRDP planning horizon is 2035. Thus, the CAP cannot be considered a qualified GHG reduction strategy for the LRDP.

[7] See Section 4.3 of BAAQMD's CEQA Guidelines (updated May 2011): http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines%20May%202011.ashx?la=en
See also BAAQMD's Plan Level Guidance: http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/GHG%20Quantification%20Guidance%20May%202012.ashx?la=en

The following analysis applies a two tiered approach to assessing GHG impacts, consistent with Appendix G of the CEQA Guidelines. In the first tier, GHG emissions related to development at the four affected campus sites under the 2014 LRDP are quantified and assessed relative to thresholds considered by the BAAQMD for impact assessment. In the second tier, a qualitative assessment of the consistency of the 2014 LRDP is undertaken with respect to applicable state and local plans, policies and regulations adopted for the purpose of reducing GHG emissions. Assessment of this second tier of potential GHG impact acknowledges the existing CAP and proposed GHG Reduction Strategy as well as the policies and plans of the UC Regents and University of California Office of the President (UCOP).

Impact GHG-LRDP-1: Implementation of the 2014 LRDP would result in an increase in construction-related greenhouse gas emissions. (Potentially Significant)

Construction activities would result in emissions of criteria pollutants from the use of heavy-duty construction equipment, haul truck trips, and vehicle trips generated from construction workers traveling to and from the site. Demolition and construction-related emissions resulting from implementation of the 2014 LRDP were calculated using the California Emissions Estimator Model (CalEEMod), assuming four discrete construction windows in five year increments.

Construction-related emissions from these project-level elements were calculated using CalEEMod, assuming completion by 2020, 2025, 2030 and 2035. Phasing lengths were based on CalEEMod default estimates which are based on square footage for hospitals, medical office buildings and number of dwelling units for housing. It was assumed that there would be no off-road equipment involved in the renovations of buildings on the Parnassus Heights and Mount Zion campus sites and that air emissions from the renovation of these buildings would be generated solely by vendor trips bringing materials and construction worker trips. Implementation of the open space and utility proposals at the Parnassus Heights and Mission Bay campus sites would require minimal construction equipment and would not be expected to contribute substantially to the emissions estimated below for building demolitions and renovations. All model inputs and outputs are provided in Appendix E.

Table 5-7 presents the annual construction-related GHG emissions generated by the 2014 LRDP for each of the four development windows assumed. Estimated emissions are 2,209 metric tons of carbon dioxide equivalent greenhouse gases (CO_2e) by 2020, an additional 862 metric tons CO_2e by 2025, an additional 1,274 metric tons CO_2e by 2031 and an additional 1,698 metric tons CO_2e in 2035[8]. As discussed earlier, BAAQMD has not established a quantitative threshold relative to construction-related emissions. In lieu of any proposed or adopted thresholds relative to construction-related emissions, these emissions are considered significant unless best management practices are implemented to reduce GHG emissions during construction, as feasible. Consequently, **Mitigation Measure LRDP-GHG-1** is identified to ensure implementation of best management practices during construction.

8 Emissions were calculated assuming construction was performed in the earliest part of the 5-year construction window to assume worst case emission factors for construction equipment and truck trips.

TABLE 5-7
ANNUAL CONSTRUCTION-RELATED GHG EMISSIONS WITHOUT MITIGATION

Emission Source	Emissions (metric tons/year)			
	CO_2	CH_4	N_2O	Total CO_2e
2015-2029	2,209	<1	<1	2,209
2020-2024	860	<1	<1	862
2025-2030	1,271	<1	<1	1,274
2031-2035	1,697	<1	<1	1,698

Project CO_2 emissions estimates were made using CalEEMod v.2013.2.

Mitigation Measure GHG-LRDP-1: Construction-Related GHG Reduction Measures.

The following BAAQMD-suggested measures shall be implemented during demolition and construction activities:

- Use alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment where feasible;
- Use locally sourced building materials for at least 10% of overall materials brought to site; and
- Recycle or reuse at least 50% of construction waste or demolition materials.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure GHG-LRDP-1 would ensure that UCSF and its contractors employ feasible, effective measures to reduce GHG emissions during demolition and construction activities. This mitigation measure would therefore reduce this potential impact to less than significant.

Impact GHG-LRDP-2: Implementation of the 2014 LRDP would result in an increase in operational greenhouse gas emissions. (Less than Significant)

Area, Energy, and Indirect Sources. Operational GHG emissions associated with the 2014 LRDP 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 sites) and solid waste generation. GHG emissions from electrical usage are generated when energy consumed by the University is generated by the non-renewable resources of an electrical supplier such as PG&E. GHG emissions from natural gas are direct emissions resulting from on-site combustion for 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 2014 LRDP is disposed in a landfill where it decomposes, producing methane gas.[9]

[9] CH_4 from decomposition of municipal solid waste deposited in landfills is counted as an anthropogenic (human-produced) GHG. (USEPA, 2006).

GHG emissions from electrical usage, natural gas combustion, mobile transportation, water and wastewater conveyance, and solid waste were estimated using the CalEEMod model, and are presented in **Table 5-8**. Default GHG emissions factor for PG&E was adjusted to reflect future reductions envisioned by PG&E[10] as well as to account for the portion of electrical power supplied by the Parnassus Central Utility Plant (PCUP). Based on the estimated on-campus power derived from the PCUP a composite GHG emission factor of 605.78 pounds per megawatt hour (MW-h) was assumed. Electrical and natural gas emissions also assume compliance with UCSF policy to achieve a 20% energy reduction beyond Title 24 requirements. Energy and indirect sources from previous converted uses are subtracted from the LRDP total as are the GHG emissions from energy and indirect sources from demolished uses. Energy use (electrical and natural gas) represents approximately 43% of estimated operational GHG emissions from new development and solid waste generation represents approximately 22% of new development emissions. The relatively high percentage of emissions from energy is the result of the electrical intensity factor assumed by CalEEMod for hospital land uses (6.78 kWh/sf/yr for Title 24 electricity and 5.52 kWh/sf/yr for non-Title 24 electricity).

TABLE 5-8
ANNUAL OPERATIONAL GHG EMISSIONS WITHOUT MITIGATION

Emission Source	Emissions (metric tons/year)			
	CO_2	CH_4	N_2O	Total CO_2e
New Development				
Area Sources	10	<1	<1	10
Energy Sources	14,766	<1	<1	14,842
Net New Mobile Sources	9,529	<1	<1	9,535
Solid Waste	3,380	200	<1	7,575
Water and Wastewater	1,196	35	<1	2,169
Subtotal	**28,881**	**235**	<1	**34,131**
Demolition Losses				
Area Sources	<1	<1	<1	<1
Energy Sources	-1,541	<1	<1	-1,548
Solid Waste	-660	-39	<1	-1,479
Water and Wastewater	-70	-1	<1	-114
Subtotal	**-2,271**	**-96**	<1	**-3,141**
Renovation Losses				
Area Sources	<1	<1	<1	<1
Energy Sources	-1,093	<1	<1	-1,094
Solid Waste	-184	-10.9		-413
Water and Wastewater	-180	-2.7	<1	-256
Subtotal	**-1,457**	**-13.6**	<1	**-1,763**
Total				**29,227**

NOTE: Columns may not total precisely due to rounding. Rows may not total precisely due to differences in global warming potential.

[10] PG&E, Greenhouse Gas Emission Factors: Guidance for PG&E Customers, April 2013.

Mobile Emission Sources

One of the sources of operational emissions would be increased vehicle emissions from additional staff, patients, visitors and residents. Traffic volumes used to estimate vehicle-related emissions were derived from the Transportation Demand Analysis prepared for the LRDP (Adavant, 2014). Implementation of the 2014 LRDP would generate an estimated 14,412 additional daily vehicle trips. GHG emissions from motor vehicle sources were calculated using the CalEEMod. Table 5-8 presents the incremental mobile source GHG emissions associated with the 2014 LRDP, which represent approximately 28% of the total operational GHG emissions from new development.

As shown in Table 5-8, the sum of both direct and indirect GHG emissions resulting from the 2014 LRDP, including emission losses from demolition and renovation would result in an estimated 29,227 metric tons per year of CO_2e.[11] Applying a service population of 12,950 persons associated with the 2014 LRDP (950 new students and 12,000 new faculty and staff) results in emissions of approximately 2.3 metric tons per year of CO_2e/SP. This is below the service population threshold of 4.6 metric tons per year of CO_2e/SP and operational GHG emissions associated with the implementation of the 2014 LRDP across all four campus sites would therefore be a less than significant impact.

Mitigation: None required.

Impact GHG-LRDP-3: Implementation of the 2014 LRDP would not conflict with the AB32 Scoping Plan, the UCSF Climate Action Plan or the UCSF GHG Reduction Strategy (Less than Significant)

Consistency with Assembly Bill 32 and the State of California Climate Change Scoping Plan

The State of California's Climate Change Scoping Plan identifies 39 Recommended Actions (qualitative measures) to address climate change. Of the 39 measures identified, those that would be considered to have the greatest potential applications to the 2014 LRDP would be those actions related to electricity and natural gas use (E), and green building design (GB).

Scoping Plan Actions E-1 and GB-1 together aim to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards. Elements of this action include encouraging construction of zero net energy (ZNE) buildings and implementation of passive solar design, all of which are proposed under the 2014 LRDP.

Proposals under the 2014 LRDP would be designed to meet certain criteria established by UCSF, including a UC-imposed goal of achieving a 20% reduction in building energy demand beyond Title 24 requirements. Achievement of such an energy reduction would demonstrate that the 2014 LRDP proposals would be highly energy, waste and water-efficient.

[11] CO_2e in all calculations include CO_2, CH_4 and N_2O.

Consequently, as proposed development under the 2014 LRDP would implement a variety of green building design measures and use renewable energy sources, it would be consistent with the Recommended Actions of the Climate Change Scoping Plan adopted by CARB to achieve the goals of AB 32.

The UCSF GHG Reduction Strategy is included in Appendix D. The GHG Reduction Strategy meets an important requirement of CEQA Guidelines Section 15183.5(b)(1) as a plan that analyzes cumulative GHG impacts. The GHG Reduction Strategy uses established protocols, methodologies and forecasts of existing and future land uses to quantify existing and projected future GHG emissions within the LRDP area. It also establishes a reduction target based on California State law (AB 32), and lays out policies, actions, and performance standards that UCSF will enact and implement over time to reduce emissions. The GHG Reduction Strategy includes GHG reduction measures that, if fully implemented, would achieve an emissions reductions target that is consistent with and supports the state-mandated reduction target embodied in AB 32.

Therefore, implementation of the 2014 LRDP would not conflict with the GHG reduction measures identified in CARB's AB 32 Scoping Plan.

Consistency with 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 President's Climate Commitment* (ACUPCC)[12] to complete an emissions inventory, set target dates and interim milestones for becoming climate-neutral,[13] take steps to reduce GHG emissions, and prepare public progress reports.

As outlined in UCSF's *Climate Action Plan* of December 2009, UC adopted the President's *Policy on Sustainable Practices* in 2007, which committed UC to 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 November 2013, and now covers the areas of green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, and sustainable water systems.

The GHG Reduction Strategy utilizes two approaches to establishing campus-wide GHG emissions targets for 2020 that are consistent with UC Policy on GHG emissions. One approach is based on UCSF's 1990 emissions inventory, while the other is based on UCSF's verified 2008 inventory, using the 15% downward adjustment recommended by CARB to account for emissions growth since 1990. GHG emissions targets for 2035 are established by determining the

12 American College & University, 2007. Text of the American College & University Presidents' Climate Commitment. Available at: www.presidentsclimatecommitment.org/about/commitment

13 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).

midpoint between the state's 2020 target (1990 levels) and 2050 target (80% below 1990 levels), which is 40% below 1990 levels by 2035.

In order to assist with determining project consistency with the GHG Reduction Strategy, a project consistency checklist has been developed. The checklist is intended to provide individual projects the opportunity to demonstrate that they are minimizing GHG emissions, while ensuring that new development at UCSF will achieve its "fair share" of emissions reductions. The GHG Reduction Strategy stipulates a range of prescribed and planned GHG reductions measures for meeting the 2020 GHG reduction target. The project review 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 2020 GHG emissions target. Future development undertaken pursuant to the 2014 LRDP would be consistent with UCSF and UCOP goals by demonstrating implementation of GHG reduction measures as well as demonstrating that the growth generated by development projects is consistent with the assumptions of the GHG Reduction Strategy and CAP to attain UCSF and UCOP policies and goals.

Since the 2014 LRDP proposals would incorporate stringent design features that would reduce GHG emissions to a minimal level, the 2014 LRDP would remain in compliance with CARB's AB 32 Scoping Plan, the goals and policies of UCSF and UCOP for reducing GHG emissions, and therefore would ensure that the 2014 LRDP's impact on GHGs is less-than-significant.

Mitigation: None required.

References

Adavant Consulting, Travel Demand Analysis Four Campus Summary: Existing & 2035, February, 2014.

5.7 Hazards and Hazardous Materials Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that no proposals under the 2014 LRDP would be located within an airport land use plan or within 2 miles of a public airport. Therefore, the potential safety hazards for people residing or working at the Parnassus Heights, Mission Bay, Mount Zion or Mission Center campus sites would not be significant.

Impact HAZ-LRDP-1: Implementation of the 2014 LRDP could create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions. (Potentially Significant)

Demolition, Renovation and Construction

Demolition and renovation proposals under the 2014 LRDP at the Parnassus Heights and Mount Zion campus sites may require disturbing older structures and improvements where hazardous building materials such as asbestos, lead-based paint (LBP), polychlorinated biphenyls (PCBs) and mercury may be present. The level of potential impact is dependent upon the age, construction and building materials of each building, as well as contamination received during the life of the structure[14]. Based on the age of existing structures, any of these hazardous building materials could be present that, if disturbed, could expose workers and the public during demolition and renovation activities. Potential exposure to these hazardous building materials and contamination can be reduced through appropriate abatement measures that are legally required by regulation as detailed in Sections 4.7.1 and 4.7.2.

Construction proposals under the 2014 LRDP would require the use of hazardous materials such as fuels, oils, solvents and glues. Inadvertent release of large quantities of these materials into the environment could adversely impact workers, the public, soil, surface waters or groundwater quality. Where applicable (i.e., proposals that disturb more than one acre), the use of construction best management practices implemented as part of a Storm Water Pollution Prevention Plan (discussed further in Section 4.8, *Hydrology and Water Quality*) as required by the National Pollution Discharge Elimination System General Construction Permit would minimize the potential adverse effects to workers, the public, groundwater and soils as described in Section 4.8.2, *Regulatory Considerations.*

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.

[14] For example, laboratories and medical clinics could contain hazardous chemicals in drains or other locations. Either could contain mercury in sink drains due to historic use of mercury thermometers.

The following mitigation measure 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.

> **Mitigation Measure HAZ-LRDP-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 encountering naturally occurring asbestos, construction specifications shall include implementation of this CARB ATCM.
>
> **Significance after Mitigation:** Less than Significant

Operation

2014 LRDP proposals would include construction of new facilities that would have a range of uses including residential, clinics, laboratories, research and support services. The hazardous materials typically used for the majority of these proposals would be brought onto campus sites packaged in consumer quantities and used in accordance with manufacturer recommendations and in accordance with existing UCSF policies and hazardous materials management plans (e.g., Chemical Hygiene Plan, Online Tag Program for managing hazardous wastes, Environmental Health & Safety Laboratory Safety Design Guide, etc.). Residential uses would likely consist of small quantities of consumer packaged products such as cleaning supplies, paints and other materials that are generally used in accordance with manufacturer recommendations.

The overall quantities of these materials on-site at any one time would not result in large bulk amounts that, if spilled, could cause a significant soil or groundwater contamination issue. Given the required protective measures (i.e., best management practices) and the quantities of hazardous materials typically needed for construction, 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.

The use, storage and disposal of hazardous materials, including biohazardous waste and low-level radioactive waste, would continue under the 2014 LRDP as part of normal operations and may expand with proposed growth. Any expansion of hazardous materials use, storage and disposal would continue under similar regulatory requirements as existing UCSF policies and hazardous materials management practices as largely documented within the Chemical Hygiene Plan. The Chemical Hygiene Plan is reviewed and updated on an annual basis and includes safety procedures, training requirements, personal protective equipment requirements, signage protocols, emergency response details and disposal guidelines that is in accordance with all federal, state, and local regulatory requirements.

Adherence to current regulatory requirements and UCSF policies and plans would provide sufficient control to minimize potential exposure to hazardous materials to a less than significant level.

Mitigation: None required.

Impact HAZ-LRDP-2: Implementation of the 2014 LRDP could result in hazardous emissions or the handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of existing or proposed schools. (Less than Significant)

There are several schools located within one-quarter mile of UCSF campus sites, including a potential San Francisco Unified School District school on Block 14 on the Mission Bay campus site, which is currently reserved for a school site. While there may be net changes in the amount and type of hazardous materials handled, stored, and disposed of, the proposed 2014 LRDP would not result in a substantive change in emissions or handling of hazardous materials and all practices would continue to adhere to federal, state, local and UCSF policies and regulatory requirements. In general, existing hazardous materials use for administrative support services or even research laboratory purposes at UCSF does not involve large enough quantities of hazardous materials or result in emissions that would represent potential health hazards to schools near UCSF campus sites. Adherence to current regulatory requirements and UCSF policies and plans would provide sufficient control to minimize potential exposure to hazardous materials to a less than significant level.

Mitigation: None required.

Impact HAZ-LRDP-3: 2014 LRDP proposals are located on campus sites that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, could create a significant hazard to the public. (Potentially Significant)

Two listings for the Parnassus Heights campus site are found on the Geotracker database maintained by the State Water Resources Control Board (SWRCB) for releases of diesel found in subsurface soil (SWRCB, 2014a and SWRCB, 2014b). A release was documented for 315 Parnassus Avenue, an adjacent property to the campus site, and the case was subsequently closed in 1999 indicating that no further action was required. The other release (diesel fuel) on the UCSF campus at 50 Medical Center Way was also closed in 2001. As such, despite being included on a hazardous materials sites list pursuant to Government Code Section 65962.5, there is no indication that any known threat to human health or the environment remains on the Parnassus Heights campus site.

The Mount Zion campus is not found on the Geotracker or EnviroStor databases maintained by the SWRCB and Department of Toxic Substances Control (DTSC) (SWRCB, 2014c and DTSC, 2014). As such, there is no indication that any known threat to human health or the environment is present from historical activities at the Mount Zion campus site.

The entire Mission Bay campus site has a long history of industrial use and a number of environmental investigations, cleanups and removals of underground storage tanks have occurred, many of which are included in the Geotracker database. Although many of these cases have been closed indicating that no further action was required, there is still a potential to encounter previously unidentified contaminants. A Risk Management Plan (RMP) was developed for the Mission Bay

campus site for previous construction efforts and has been effective in reducing potential impacts as a result of past releases of hazardous materials. This document has been periodically amended by the San Francisco Bay Regional Water Quality Control Board (RWQCB). As called for in the RMP, at the onset of each project, UCSF hires a qualified geotechnical/environmental consultant to do soil testing and prepare a site-specific report identifying any necessary remediation. The RMP provides construction protocols and notification procedures that would protect workers, the public, and the environment from any legacy contaminants that may be discovered during groundwater breaking activities.

Considering the past industrial uses of the site, it is also possible for volatile components of subsurface contaminants, if present, to migrate through building foundations exposing residents and visitors to potential soil vapor contamination. Previous studies have identified methane as an issue of concern at the Mission Bay campus site. Working with the RWQCB, BAAQMD, and the San Francisco Department of Public Health on a project by project basis, UCSF installs subsurface engineered control systems to address venting of volatile components of subsurface contaminants, protect public health, and ensure that maximum exposure levels for building occupants are not exceeded. Characterization and risk analysis of any subsurface contaminants would be addressed either through remediation prior to commencement of construction or through design elements such as vapor barriers that would protect future occupants from adverse health effects.

The Mission Center campus site is not found on the EnviroStor database maintained by the DTSC but does contain three cases (i.e., listed as Alioto's Garage, Commercial Building and International Disposal) found on the Geotracker database maintained by the SWRCB (DTSC, 2014 and SWRCB, 2014). The three case listings are classified as closed, indicating that either the identified contamination was minimal or remediated to point such that no further action was warranted (SWRCB, 2014). However, to ensure that potential hazard to the public from residual contamination is minimized, the following mitigation measure shall be required at the Mission Center campus site:

> **Mitigation Measure HAZ-LRDP-2:** Prior to development on the Mission Center campus site, 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) and any additional removal or remediation work completed prior to occupancy of the new structure.
>
> **Significance after Mitigation:** Less than Significant

Impact HAZ-LRDP-4: Implementation of the 2014 LRDP would not result in a safety hazard for people residing or working in the vicinity of a private airstrip. (Less than Significant)

The existing facilities at the Mission Bay campus site include a helicopter landing pad (helipad) which will be served by turbine-powered helicopters operated by REACH and Calstar. New

facilities under the 2014 LRDP could potentially expose new residents, visitors, or employees to safety hazards associated with the proximity to this helipad.

As discussed in the EIR for Phase I of the Mission Bay Medical Center, according to National Transportation Safety Board (NTSB), data collected over the period of 1997 through 2006 indicates that turbine-powered helicopters averaged 1.1 fatal accidents per 100,000 flight hours, or approximately one fatal accident per 90,000 hours of flight (Barnett, 2008). Using an average helicopter flight duration of approximately 20 minutes, the accident rate for a turbine helicopter is one fatal accident per 270,000 flights.

The accident rate for medical helicopters is slightly higher when compared with this number and averages approximately 1.8 fatal accidents per 100,000 flights (Barnett, 2008). Using the 20 minute estimate for an average helicopter flight, as assumed above, this equals to approximately one fatal accident per 180,000 flights. This risk is increased where the landing site is unfamiliar to the pilot, which is more common during emergency scene calls and would not be the case for the Mission Bay campus location because all helicopter flights will be pre-arranged between medical facilities and UCSF. Of the 56 fatal accidents in US that involved medical helicopters (1991-2007), four occurred while landing or taking off from a hospital helipad. This rate equals approximately 1 in 2.5 million and is considered a measurable yet very small risk (Barnett, 2008). None of the four fatal helicopter events at a hospital caused any ground deaths to third parties, although in one accident, a hospital security guard who was helping service the helicopter was fatally injured. Moreover, based on the statistics associated with medical helicopter operations since 1991 in the United States, the observed risk to third parties has been negligible.

The helicopter flight operations risk at the Mission Bay campus site would likely be lowered further by the fact that the helipad is located in close proximity to the bay where no physical barriers exist to obstruct views of the approach. Furthermore, REACH and Calstar have performed over 69,000 hours of service in combination, and have suffered one fatal accident, a rate that is consistent with the overall accident rate statistics described above. The accident that occurred did not cause any fatalities on the ground.

Statistics also reveal that helicopter accidents that cause serious injuries to third parties or substantial property damage are also extremely rare. Out of 132 incidents involving medical helicopters from 1991 to 2005,[15] none caused serious injury to a third party and one caused modest damage to a hospital building (Barnett, 2008).[16]

Based on information documenting national helicopter safety patterns provided above, it can be assumed that, while the risk of death or injury to third parties, and risk of property damage to structures near the project site is not zero, this risk is very small. The twelve million medical helicopter flights in the US since 1991 have caused no deaths to third parties in the vicinity of hospitals. Based on this and other statistics noted above, the likelihood of a third party death resulting from the continued operation of the inter-facility transfer operation is also extremely

15 This statistical record was achieved in the course of approximately twelve million medical helicopter flights.
16 One medical flight hit a home after losing visibility en route, causing serious injury to three occupants. But this accident was not close to the destination hospital.

small. As a result, implementation of the 2014 LRDP would have a less than significant impact as to safety for people residing or working in the vicinity of a private airstrip.

Mitigation: None required.

Impact HAZ-LRDP-5: Implementation of the 2014 LRDP would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

Fire protection and emergency response services would continue to be provided to UCSF campus sites by the City of San Francisco Fire Department. The Fire Department delivers emergency and non-emergency services, including rapid assistance for medical, fire or other hazardous situations, to the entire City. Any proposed improvements associated with the 2014 LRDP (including development of Blocks 33 and 34) would be required to ensure that the street system can accommodate emergency response and evacuation. In general, implementation of the 2014 LRDP would not substantively change the circulation plan at UCSF campus sites and all improvements would be designed to ensure appropriate emergency access to and egress from all areas. Additionally, all project-specific designs, including private internal circulation and building site plans, would be subject to review and approval by the City for emergency response and evacuation concerns. UCSF design criteria and existing emergency response requirements are sufficient to ensure that the potential health and safety effects resulting from possible impairment or implementation of any emergency response or evacuation plans would remain a less-than-significant impact.

Mitigation: None required.

Impact HAZ-LRDP-6: Implementation of the 2014 LRDP would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (Less than Significant)

The California Department of Forestry and Fire Protection has identified urban areas considered at risk as a fire-threatened community as part of the Wildland Urban Interface program. San Francisco is among the 874 communities currently on the Communities at Risk List.

While all of California is subject to some degree of fire hazard, there are specific features that make certain areas more hazardous. The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors (Public Resources Code 4201-4204 and Government Code 51175-89). According to mapping compiled by the Association of Bay Area Governments (ABAG), of the four UCSF campus sites being evaluated here, only the Parnassus Heights campus site is located in an area considered to be a community at risk while the other three are mapped as urbanized areas (ABAG, 2014).

According to mapping for the City of San Francisco's Hazard Mitigation Plan, the Parnassus Heights campus site, which includes the Mount Sutro Open Space Reserve (Reserve), is located in an area considered to be a high to very high potential for wildfire (URS, 2008). As discussed in the Project Description (Section 3.9.1.1), under a separate process that began prior to the 2014 LRDP, UCSF proposed management activities within the Reserve which were the subject of a Draft EIR published in January 2013. Subsequently, in light of the elevated fire danger resulting from California's current drought conditions, UCSF revised its proposal to focus on reducing the danger of wildfire. It retained a professional forester with a background in firefighting to identify fire hazard reduction measures for the Reserve area. The identified fire hazard reduction measures are consistent with best management practices applied throughout California in forests located near urban areas. At the time of preparation of this document, UCSF is carefully considering the public feedback received to date to determine the best path forward. It is anticipated that the final plan, at a minimum, will include fire hazard reduction measures as recommended by the forester. Those recommendations include thinning of trees and understory in targeted areas near UCSF buildings, neighboring buildings, trails, and Medical Center Way. Any changes to the management activities analyzed in the January 2013 Draft EIR would be reviewed to determine what additional environmental analysis would be needed, if any, to comply with CEQA, separate from the 2014 LRDP and EIR.

2014 LRDP activities would not substantially increase the population at the Parnassus Heights campus site, and would not increase the number of structures within the Reserve. In addition, under a planning process separate from the 2014 LRDP, UCSF is seeking to minimize the wildfire danger within the Reserve. Therefore, the potential impact from exposure of persons or structures to wildland fires attributable to the 2014 LRDP would be less than significant.

Mitigation: None required.

References

Association of Bay Area Governments (ABAG), Wildland Urban Interface-Fire Threatened Communities map, http://quake.abag.ca.gov, 2014.

Barnett, Arnold, *Risk Assessment for Helicopter Operations at the University of California-San Francisco Medical Center at Mission Bay*, March, 2008.

State Water Resources Control Board (SWRCB), *Geotracter database*, http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607515600, accessed February 3, 2014a.

State Water Resources Control Board (SWRCB), *Geotracter database*, http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607501103, accessed February 3, 2014b.

State Water Resources Control Board (SWRCB), *Geotracter database*, http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=San+Francisco%2C+CA, accessed February 14, 2014c.

Department of Toxic Substances Control (DTSC), Envirostor Database, http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global_id=&x=-119&y=37&zl=18&ms=640,480&mt=m&findaddress=True&city=1600%20Divisidero,%20San%20Francisco%20CA&zip=&county=&federal_superfund=true&state_response=true&voluntary_cleanup=true&school_cleanup=true&ca_site=true&tiered_permit=true&evaluation=true&military_evaluation=true&school_investigation=true&operating=true&post_closure=true&non_operating=true, accessed February 14, 2014.

5.8 Hydrology and Water Quality Impacts of the 2014 LRDP

The Initial Study determined that implementation of the 2014 LRDP would not result in substantial depletion of groundwater supplies or interfere with groundwater recharge. Therefore, no impact regarding groundwater would result from implementation of the 2014 LRDP.

Impact HYD-LRDP-1: Implementation of the 2014 LRDP could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (Less than Significant)

New development proposed under the 2014 LRDP would require demolition, excavation, grading and construction activities that would require temporary disturbance of surface soils and removal of existing pavement and sub-surface structures (if present). These activities would expose soil to water runoff as well as entrainment of sediment in the runoff. If dewatering were necessary during construction, the collected water would likely contain suspended sediments and would require settling before discharge to the City's Combined Sewer System (CSS). Sediment in runoff and deposits of soil and related debris from haul truck tires on local streets could increase the amount of sediment entering the storm drains, which could potentially clog drain inlets and reduce the flow capacity of the storm drains. The accumulation of this material could potentially result in increased localized ponding or flooding, particularly after large storm events.

The use of construction equipment as well as the delivery, handling and storage of construction materials and waste could contaminate stormwater that could negatively impact water quality. Potential contaminants include, but are not limited to (CSW/Stuber-Stroeh, 2011):

- Petroleum hydrocarbons and metals from stockpiled soils excavated from the site
- Fuel from storage drums
- Diesel from refueling trucks
- Oils and grease from miscellaneous heavy equipment
- Sewage from portable sanitary facilities
- Sediment from construction generated waste – piles of concrete, rock and debris
- Sediment from rock crushing activities
- Hazardous materials storage-hydraulic oil, motor oil, and lubricating fluid
- Spills and releases of hydrocarbons and related pollutants from routine light maintenance activities such as fluid topping off, and welding and repairing belts and gears of heavy equipment

Polluted stormwater runoff could violate water quality standards and/or waste discharge requirements established in the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction and the NPDES discharge permits for the Southeast and Oceanside Treatment Plants.

In accordance with the Construction General Stormwater Permit, UCSF would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for proposed development activities to minimize water quality impacts during construction and demolition. SWPPPs 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.

The revised MS4 General Permit includes the following provisions for post-construction stormwater management:

- By July 2015, UCSF projects that create and/or replace (including projects with no net increase in impervious footprint) greater than 2,500 square feet of impervious surface must include the following:
    - Site design measures (porous pavement, setbacks, impervious area disconnection) to reduce project site runoff
    - LID design standards to effectively reduce runoff and pollutants from the project site
        - Source control measures including permanent and/or operational source control measures at areas such as loading docks, fuel dispensing areas, pools
        - Numeric sizing criteria for stormwater retention and treatment

  - Stormwater treatment measures and baseline hydromodification management measures

- By July 2016, UCSF shall implement an operation and maintenance program for the post-construction stormwater management measures.

Compliance with the MS4 and SWPPP regulations is expected to protect water quality and help reduce the impacts of the 2014 LRDP proposals to a less than significant level.

Mitigation: None required.

Impact HYD-LRDP-2: Implementation of the 2014 LRDP would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation on- or off-site, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. (Less than Significant)

Demolition, renovation and construction activities proposed under the 2014 LRDP would not significantly change the volumes of stormwater runoff or the direction of flows to the CSS. Measures to prevent and minimize erosion and its potential effects on storm drain siltation are addressed under Impact HYD-LRDP-1. The impact would be less than significant.

Mitigation: None required.

Impact HYD-LRDP-3: Implementation of the 2014 LRDP would not generate runoff that would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff. (Less than Significant)

As discussed above under Impact HYD-LRDP-2, demolition, renovation and construction activities proposed under the 2014 LRDP would not significantly change the volumes or routing of anticipated stormwater. The proportion of impermeable surfaces at each respective campus site would not significantly change. Measures to protect water quality are described above under Impact HYD-LRDP-1. The impact would be less than significant.

Mitigation: None required.

Impact HYD-LRDP-4: Implementation of the 2014 LRDP would place housing within a 100-year flood hazard area, potentially impede flood flows and potentially expose people to a significant risk of loss, injury or death associated with flooding. (Less than Significant)

The 2014 LRDP proposes new housing at the Parnassus Heights and Mission Bay campus sites. Proposed housing at the Parnassus Heights campus site would not be located within a flood hazard area. As discussed in greater detail in Chapter 7, although portions of the Mission Bay campus site proposed for housing under the 2014 LRDP are within flood hazard areas, UCSF is currently raising ground elevations above the Base Flood Elevation via surcharging to expedite soil settlement and subsequent placement of engineered fill to specified elevations above the

100-year flood level. It is anticipated that these efforts will reduce the effects of flooding on proposed housing to a less than significant level.

Mitigation: None required.

Impact HYD-LRDP-5: Implementation of the 2014 LRDP would expose people or structures to a significant risk of loss, injury or death due to tsunami, seiche or mudflow. (Less than Significant)

The Mount Zion and Mission Center campus sites would not be exposed to tsunami, seiche or mudflow. Similarly, the Parnassus Heights campus site would not be subject to tsunami or seiche. However, much of Mount Sutro is located in a landslide hazard area. This topic is addressed above in Section 5.1.5 and also in Section 6.5.

The Mission Bay campus site would not be subject to mudflow, but portions of the campus site could potentially be inundated by a tsunami or seiche. Impacts to structures would be less than significant with incorporation of specific design features such as seismic structural elements that would increase the resilience of structures to tsunamis or seiches. Impacts to people would be less than significant with implementation of the San Francisco outdoor warning system, which would notify people of an impending tsunami or seiche. See Section 7.8 for further detail regarding potential exposure to tsunami at the Mission Bay campus site.

Mitigation: None required.

Impact HYD-LRDP-6: Implementation of the 2014 LRDP would expose people or structures to an increased risk of loss, injury or death due to flooding from sea level rise. (Less than Significant)

Portions of the Mission Bay campus site are potentially vulnerable to inundation from sea level rise, particularly if higher estimates of sea level rise are validated over time. While various state and local guidelines exist for planning for and anticipating sea level rise, there are currently no legally enforceable engineering or design standards that can be applied to proposed development in vulnerable areas aside from those that are based on existing (i.e. without sea level rise) conditions (e.g. the City's Floodplain Management Ordinance). In addition, there exists no consensus among planners and engineers about how to reconcile uncertainty in anticipated rates of sea level rise with the typical horizons for capital improvement projects and long range development plans such as the 2014 LRDP, with its 20 year time horizon. Discussion of the potential effects and mitigation of sea level rise at the Mission Bay campus site is discussed in Section 7.8.

Mitigation: See Section 7.8.

References

CSW/Stuber-Stroeh Engineering Group, Inc., *Storm Water Pollution Prevention Plan*, UCSF Medical Center at Mission Bay, San Francisco, California, August, 2011.

5.9 Land Use and Planning Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that implementation of the 2014 LRDP would not physically divide an established community. Therefore, no impact would result regarding physical division of an established community.

The Initial Study also determined that implementation of the 2014 LRDP would not conflict with any applicable habitat conservation plan or natural community conservation plan. Therefore, no impact regarding conflicts with such plans would result from implementation of the 2014 LRDP.

Impact LU-LRDP-1: Implementation of the 2014 LRDP would be consistent with applicable land use plans, policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

Upon adoption by the Regents, the proposed 2014 LRDP will replace the 1996 LRDP, as amended, and become the applicable campus land use plan for UCSF. 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. The University is the only agency with land use jurisdiction over programs and projects proposed at UCSF campus sites by the 2014 LRDP. Therefore, all proposed activities that would be in general conformity with the 2014 LRDP would have no significant land use impacts. However, UCSF also considers the land use policies and zoning regulations of the City when analyzing potential land use impacts under CEQA. The 2014 LRDP is not expected to conflict with those City plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Functional Zones

The 2014 LRDP's proposed functional zones are generally consistent with the existing zones at the Parnassus Heights and Mission Bay campus sites. Proposed changes at these campus sites include reclassifying some areas as Housing in order to match uses proposed by the 2014 LRDP and combining the current Campus Community and Logistical Support zones into a single Support zone. Some building sites on the Parnassus Heights campus site would be reclassified as Open Space and would become part of the Mount Sutro Open Space Reserve subsequent to the demolition of existing buildings as proposed by the 2014 LRDP. A new separate Parking zone is proposed for areas of structured parking. Blocks 33 and 34, proposed as the new East Campus at Mission Bay, have not been designated with functional zones by UCSF. As part of the approval of the 2014 LRDP, the Regents also would designate these blocks for Research and Parking.

The Mount Zion campus site would be newly designated with functional zones under the 2014 LRDP. The majority of the campus site is proposed as Clinical, with smaller areas classified as Research and Parking.

The Mission Center campus site has not been designated with functional zones by UCSF. Construction of an additional office building under the 2014 LRDP would be consistent with the existing use on this campus site.

The functional zone changes proposed by the 2014 LRDP do not present land use conflicts with adjacent existing land uses on the Parnassus Heights, Mission Bay or Mount Zion campus sites. See Sections 6.9, 7.9 and 8.9 for detailed discussion of proposed functional zone changes at these respective campus sites. Compatibility between adjacent existing and proposed functional zones was taken into consideration in developing the proposed zones in the 2014 LRDP. Existing land use patterns reflect campus development guided by the planning principles embodied in the previous LRDPs. Therefore, implementation of the 2014 LRDP would have a less-than-significant impact regarding consistency with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Consistency with Regents' Resolution

With the 2014 LRDP UCSF is proposing that the Regents update the 1976 Regents' Resolution by modifying the way space and population are monitored at the Parnassus Heights campus site. As discussed in detail in Chapter 6, the 2014 LRDP would be consistent with the space and population commitments for the Parnassus Heights campus site upon adoption by the Regents of the proposed update to the 1976 Regents' Resolution and the impact would be less than significant.

Mitigation: None required.

Impact LU-LRDP-2: The 2014 LRDP would not result in substantial incompatibilities with adjacent land uses. (Less than Significant)

As noted above under Impact LU-LRDP-1, 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. However, UCSF also considers the land use policies and zoning regulations of the City when analyzing potential land use impacts under CEQA. Development proposed by the 2014 LRDP could be accommodated by a variety of building configurations and site plans that would meet the LRDP goals and objectives, and remain responsive to the City's land use plans and policies.

Building renovations proposed by the 2014 LRDP at the Parnassus Heights and Mount Zion campus sites would be limited to the interiors of Moffitt Hospital, UC Hall, Millberry Union towers and the Main Hospital at Mount Zion. No impacts would occur with respect to conflicts with City regulations for these renovations.

Although most new buildings proposed under the 2014 LRDP have not yet been designed, conceptual drawings indicate that proposed buildings would be largely consistent with City Planning Code designations for the building sites, if applicable. However, the proposals for the New Hospital Addition at the Parnassus Heights campus site and the new office/research building at the Mount Zion campus site as currently conceptualized would conflict with Planning Code height and/or bulk regulations for these sites. See Sections 6.9 and 7.9, respectively, for discussion of compatibility of these proposed buildings with adjacent land uses.

In order to meet the SB 1953 mandate at the Parnassus Heights campus site, inpatient uses currently at Moffitt Hospital must be relocated prior to 2030, necessitating the construction of the New Hospital Addition. Therefore, to the extent feasible, UCSF would design the New Hospital Addition to avoid or minimize this conflict with the City's Planning Code, but it would not be possible to replace all clinical uses currently in Moffitt Hospital with a new hospital that complies with the City's zoning regulations for this site. UCSF would also strive to design the proposed building at the Mount Zion campus site to avoid or minimize conflicts with the Planning Code.

Notwithstanding the potential for conflicts with the Planning Code, implementation of the 2014 LRDP would not result in any incompatibility with adjacent land uses. 2014 LRDP development would occur on campus sites already developed with other similar UCSF facilities, with the same or similar land uses.

Mitigation: None required.

5.10 Noise Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that there are no public use airports within two miles of the Parnassus Heights, Mission Bay, Mount Zion or Mission Center campus sites. Therefore, no impact regarding exposure to excessive noise levels from public use airports would result from implementation of the 2014 LRDP.

The Initial Study also determined that there are no private airstrips within the vicinity of the Parnassus Heights, Mount Zion or Mission Center campus sites. Therefore, no impact regarding excessive exposure to excessive noise levels from private airstrips would result from implementation of the 2014 LRDP at these campus sites.

Impact NOI-LRDP-1: Implementation of the 2014 LRDP would result in increased ambient noise levels during demolition and construction activities. (Potentially Significant)

As noted in the Regional Setting section, the hours that construction activity noise can occur is described in Sections 2908 of the 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. 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.

Demolition and construction proposed under the 2014 LRDP would require the use of heavy duty off-road construction equipment as well as haul trucks to remove demolition debris. The number of daily truck trips would depend on the pace of demolition. Equipment typically involved with large-scale demolition would include excavators, dozers, loaders and trucks 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. Construction activities would involve excavation, grading, and earth movement and, potentially, pile driving. **Table 5-9** 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.

Proposed building renovations are assumed to be predominantly interior renovations and would not involve operation of off-road construction equipment other than a small crane or man lift that would not be expected to substantially alter the existing noise environments. Since these activities would be largely conducted within the existing buildings they would not result in significant construction noise impacts.

TABLE 5-9
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, Leq at 50 Feet)
Dump truck	76
Portable air compressor	78
Concrete mixer (truck)	79
Crane	81
Excavator	81
Dozer	82
Paver	77
Generator	81
Backhoe	78
Pile driver	101
Auger Drill Rig	84

SOURCE: FHWA, 2006.

Implementation of the open space and utility proposals at the Parnassus Heights campus site may also involve limited operations of some types of construction equipment, such as a backhoe. However, the limited scope and duration of operation involved with these activities would not be expected to substantially alter the existing noise environment.

Analysis provided in Sections 6.10, 7.10, 8.10 and 9.10 indicates that noise levels from proposed demolition and construction activities at the four main campus sites could exceed existing noise levels by as much as 19 dBA. Noise levels from proposed demolition activities at the Parnassus Heights and Mount Zion campus sites could exceed 10 dBA over existing levels (a perceived doubling of loudness) during peak demolition activities. Receptors near these demolition sites would also experience noise levels approaching or exceeding a speech-interference threshold of 70 dBA and result in a temporary but significant construction noise impact from demolition activities.

Implementation of **Mitigation Measure NOI-LRDP-1a** and **b** would reduce noise levels associated with demolition and construction activities at the four main campus sites by 5 to 10 dBA. However, it is likely that noise levels in excess of 70 dBA would still occur at some sensitive receptors at the Parnassus Heights and Mount Zion campus sites after mitigation. Consequently, this impact, although temporary, would be significant and unavoidable at the Parnassus Heights and Mount Zion campus sites.

Mitigation Measure NOI-LRDP-1a: Construction Noise Control Measures.

UCSF contractors shall employ site-specific noise attenuation measures during construction 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.

Mitigation Measure NOI-LRDP-1b: Construction Hours.

Construction hours are 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.

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.

Significance after Mitigation: Less than Significant

Impact NOI-LRDP-2: Implementation of the 2014 LRDP would result in increased ambient noise levels during pile-driving activities. (Potentially Significant)

Noise during construction activities could exceed existing daytime noise levels at all four campus sites by as much as 19 dBA. If an impact pile driver were required, it could result in an increase of up to 35 dBA over existing noise levels, resulting in intermittent periods of significant noise increase over existing conditions during the pile installation phase. Implementation of **Mitigation Measure NOI-LRDP-2** would reduce the effects of pile-driving activities

Mitigation Measure NOI-LRDP-2: Pile-Driving Noise-Reducing Techniques and Muffling Devices.

Noise-reducing pile-driving 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.
- Installing intake and exhaust mufflers on pile-driving equipment
- Implement "quiet" pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration).
- Use cushion blocks to dampen impact noise. Cushion blocks are blocks of material that are used with impact hammer pile drivers. They consist of blocks of material placed atop a piling during installation to minimize noise generated when driving the pile. Materials typically used for cushion blocks include wood, nylon and micarta (a composite material).
- At least 48 hours prior to pile-driving activities, UCSF shall notify building owners and occupants within 600 feet of the project site of the dates, hours, and expected duration of such activities.

Significance After Mitigation: Significant and Unavoidable. Mitigation Measure NOI-LRDP-2 would reduce the severity of noise generated by pile-driving activities and reduce the potential annoyance to nearby residents and others who could be disturbed by pile-driving to the extent feasible. If piles can be installed though drilling and cast in place measures then this mitigation measure would result in a less than significant impact.

However, if geotechnical conditions exist such that impact or vibratory pile-driving is required, then construction noise would be significant. Although pile-driving noise would be intermittent and would occur over a short duration, even after mitigation the noise level above the ambient noise level would likely exceed 20 dBA during pile-driving activities, resulting in a significant and unavoidable impact.

Impact NOI-LRDP-3: Implementation of the 2014 LRDP would generate ground-borne vibration during demolition and construction activities. (Less than Significant)

The types of construction and demolition-related activities associated with propagation of ground-borne vibration include pile driving, use of hoe-rams for demolishing large concrete structures and foundations and caisson drilling.

The only demolition activity associated with propagation of ground-borne vibration would be use of hoe-rams for demolishing large concrete structures or foundations. Operation of a hoe ram can result in peak particle velocities (PPV) of up to 0.089 inches per second (in/sec) at a distance of 25 feet (FTA, 2006). The Caltrans threshold of architectural damage for conventional sensitive structures 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. As discussed in Sections 6.10 and 7.10, vibration from hoe-ram operation would not exceed the Caltrans criterion for the protection of fragile older buildings, or the criterion for newer buildings at any off campus receptors at the Parnassus Heights or Mount Zion campus sites. Consequently, the demolition proposals under the 2014 LRDP would have a less-than-significant impact to ground-borne vibration.

Of the equipment likely to be used during construction activities, pile driving has the potential to result in the highest levels of ground-borne vibration. Pile driving, if required, could take a number of months, and would occur during daytime hours, consistent with the City's Police Code. Pile driving can result in peak particle velocities (PPV) of up to 1.5 inches per second (in/sec) at a distance of 25 feet (FTA, 2006), but typically results in an average of about 0.644 PPV at that distance. The Caltrans threshold of architectural damage for conventional sensitive structures 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. As discussed in Sections 6.10, 7.10, 8.10 and 9.10, vibration from pile driving would not exceed the Caltrans criterion for the protection of fragile older buildings, or the criterion for newer buildings at any off campus receptors.

Consequently, demolition or construction proposals under the 2014 LRDP would have a less-than-significant impact with regard to ground-borne vibration.

Mitigation: None required.

Impact NOI-LRDP-4: Implementation of the 2014 LRDP could cause a long-term increase in ambient noise levels in the vicinity. (Less than Significant)

No long-term noise sources and no long-term noise increases would be associated with demolition proposals at the Parnassus Heights and Mount Zion campus sites under the 2014 LRDP. Renovation proposals at these campus sites may result in subtle increases in roadway traffic, but considered within the context of 2014 LRDP proposals at these sites the roadway noise increase would be less than significant. No new mechanical or other stationary noise sources would be introduced by these renovations. Consequently, operational noise increases due to these renovation proposals would be less than significant.

Long-term noise sources associated with operation of renovated buildings and new buildings would primarily consist of marginal increases in roadway traffic resulting from new and repurposed land use. There will likely be some new mechanical equipment (e.g. heating ventilation and air conditioning) associated with operation of the new buildings. The potential locations of such equipment in not known given that these buildings have not yet been designed. However, such equipment would be operated to conform to the extent feasible with the requirements of the City of San Francisco noise ordinance. Additionally, new mechanical equipment would effectively replace older and potentially noisier HVAC equipment currently existing at buildings that would be demolished.

Operation of buildings proposed under the 2014 LRDP would be considered to generate a significant impact if it resulted in a permanent increase in ambient noise levels greater than 3 dBA in the building vicinity above levels existing without the building for areas already impacted by noise. Noise levels were determined for this analysis using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model and the turning movements provided in the traffic study for the 2014 LRDP, for Existing (2014), Existing Plus LRDP and LRDP horizon year, 2035, conditions. Peak hour intersection turning data from the traffic study were analyzed to evaluate traffic increases and resulting traffic-generated noise increases on roadway links most affected by LRDP -related traffic. The roadway segments analyzed and the results of the noise increases resulting from modeling at each of the four campus sites are presented in Sections 6.10, 7.10, 8.10 and 9.10.

As indicated in the campus site analyses, the increases in traffic noise in the vicinity of the campus sites from the Existing Plus LRDP traffic scenario compared to the Existing traffic scenario would increase peak hour noise levels by less than 3 dBA at all roadway segments.

Overall, long-term increases in ambient noise levels resulting from implementation of the 2014 LRDP would be less than significant.

Mitigation: None required.

Impact NOI-LRDP-5: Implementation of the 2014 LRDP would result in exposure of persons (new residents) to noise levels in excess of standards established in the City of San Francisco General Plan. (Less than Significant)

The 2014 LRDP would renovate and repurpose UC Hall and the Millberry Union towers on the Parnassus Heights campus site to residential uses, and construct new housing on the Proctor site and Fifth and Parnassus avenues, as well as on Block 15 on the Mission Bay campus site, resulting in new sensitive receptors at these locations. Long-term noise monitoring conducted at both campus sites indicates existing exterior noise levels range from 61 to 64 DNL, which is within the "conditionally acceptable" noise exposure category for residential uses as defined by the City of San Francisco General Plan Noise Element (greater than 60 DNL).

A conditionally acceptable noise exposure is defined as one in which new construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Both UC Hall and the Millberry Union towers have air-handling systems and windows are generally kept closed. Proposed housing units on Block 15 would have air handling systems. Additionally, Section 1207 of the California Building Code (Title 24 of the California Code of Regulations) establishes material requirements in terms of sound transmission class (STC) [17] of 50 for all common interior walls and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public area. This requirement would be sufficient to achieve

[17] The STC is used as a measure of a materials ability to reduce sound. The STC is equal to the number of decibels a sound is reduced as it passes through a material.

the additional 1 to 4 dBA of sound reduction necessary to achieve the noise exposure goals of the San Francisco General Plan.

Once operational in 2015, the Phase 1 Medical Center at Mission Bay will include a helipad that will have occasional helicopter operations. Noise contours for helicopter operations at this building were developed as part of the EIR for the UCSF Medical Center at Mission Bay. These contours indicate that the proposed Block 15 housing buildings would be over 500 feet north of the 65 CNEL contour as well as the 5% awakening contour for helicopter operations and therefore, would not be exposed to significant noise from helicopter operations.

Mitigation: None required.

References

Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2006.

5.11 Population and Housing Impacts of the 2014 LRDP

At publication of the Initial Study for the 2014 LRDP, UCSF had proposed to demolish three Aldea residential buildings containing 42 total residential units on the Parnassus Heights campus site. UCSF now proposes to retain these units. The Initial Study determined that the displacement of existing housing would be a less than significant impact due to the net new number of housing units proposed at LRDP horizon. Therefore, this less than significant impact would not occur with the retention of these housing units. No other existing housing or people would be displaced, necessitating the construction of replacement housing elsewhere, as a result of the 2014 LRDP. Therefore, no impact regarding displacement of existing housing or people would result from implementation of the 2014 LRDP.

Impact POP-LRDP-1: The 2014 LRDP would induce population growth in the San Francisco Bay area, which could create demand for housing outside the market area. (Less than Significant)

The 2014 LRDP would result in population growth in San Francisco or the wider Bay Area through increased employment and student enrollment. The 2014 LRDP would accommodate an increase in employment and students at all campus sites from the current approximately 30,840 to approximately 42,270 by 2035, or an increase of about 11,430.

According to *Plan Bay Area*, approximately 569,000 people worked in San Francisco in 2010. Between 2010 and 2040, San Francisco is expected to add about 191,000 new jobs, which would represent nearly a 34% increase over its 2010 employment levels. The UCSF share of this additional employment (including students) in 2035 would be approximately 6%. The amount of employment growth at UCSF would not add significantly to the amount of employment forecast for San Francisco during this period.

Conservatively assuming that all new UCSF students and employees 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 Bay Area. Assuming that future students and employees would make the same residential location decisions as current UCSF employees, approximately half 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 per household and based on 2.3 persons per household for San Francisco, the total population in San Francisco associated with UCSF growth under the 2014 LRDP would be about 13,000. The share of the City's 2040 population growth associated with the population growth under the 2014 LRDP would be approximately 5%.

The market area for housing for UCSF employees is the nine county Bay Area. This is the area within which about 98% of UCSF staff resides. Generally, the housing demand associated with employment growth under the 2014 LRDP would be satisfied by the housing that could be added in San Francisco and in other parts of the region. Assuming the current pattern of residential

location preferences, the housing demand in San Francisco associated with UCSF student and employment growth would represent about 6% of the projected household growth—a share that would not trigger shifts of demand to other parts of the region or beyond the regional housing market area.

UCSF currently has 431 residential units on the Mission Bay campus site and 222 units on the Parnassus Heights campus site, with a total of 921 beds. Approximately 852 new units could be developed under the 2014 LRDP on these campus sites, for a total of 1,505 units and 2,083 beds. No residential units exist or are proposed by the 2014 LRDP at the Mount Zion or Mission Center campus sites. Development of additional residential units on the Mission Bay and 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 also promotes 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 also serves to improve the University's jobs-housing balance and support the City's housing goals.

Implementation of the 2014 LRDP would induce population growth in the Bay Area, but not to the extent that demand for new housing would exceed the capacity of the market area. The impact would be less than significant.

Mitigation: None required.

5.12 Public Services Impacts of the 2014 LRDP

Impact PUB-LRDP-1: Implementation of the 2014 LRDP 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)

In 2013, the estimated UCSF population across all sites, including patients and visitors, was approximately 39,420. At LRDP horizon in 2035 (including the Phase 2 Medical Center at Mission Bay), total population is projected to reach approximately 56,420, an increase of about 17,000, the majority of which would be associated with growth proposed by the 2014 LRDP. The population growth due to the 2014 LRDP could result in the need for increased fire protection services at the UCSF campus sites.

The population increase associated with the 2014 LRDP would be minimal in comparison to the population served by the existing fire stations near the Parnassus Heights, Mission Bay, Mount Zion and Mission Center campus sites. 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. UCSF is located in an urban area and would not extend demand of the San Francisco Fire Department (SFFD) beyond the current limits of its service area. The anticipated population increase associated with implementation of the 2014 LRDP would neither adversely affect SFFD service standards nor require an increase in SFFD staff that would require the construction of new fire protection facilities. In addition, the City is currently constructing a new Public Safety Building at Third Street and Mission Rock Street, which will house a new fire station that will be operational in fall 2014 (SFDOE, 2014). The new station is being constructed to serve all new development at Mission Bay, including the UCSF Mission Bay campus site.

Furthermore, development under the 2014 LRDP 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 (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 2014 LRDP, existing fire stations would be adequate to meet the increases in demand for fire protection and emergency medical response services associated with growth under the 2014 LRDP, and no additional new or physically altered facilities would be necessary. Therefore, implementation of the 2014 LRDP would have a less than significant impact regarding the construction of new or physically altered fire protection facilities.

Mitigation: None required.

Impact PUB-LRDP-2: Implementation of the 2014 LRDP would not result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, need for new or physically altered police 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)

Population increases due to the 2014 LRDP would result in increased demand for law enforcement services from the UC San Francisco Police Department (UCPD) and the San Francisco Police Department (SFPD).

In 2012, the service ratio of UCPD personnel to UCSF population was 1.9 sworn police officers per 1,000 persons (UCSF, 2012). The increase in daily population at the four campus sites will increase demand on UCPD services; however, it is not anticipated that new facilities would be needed in order to maintain current service levels for the Parnassus Heights, Mount Zion, or Mission Center campus sites. As the Mission Bay campus site grows, it is anticipated that approximately 1,500 square feet will be assigned to UCPD services in a new building on the North Campus, likely on Block 15 or 23. Construction-related impacts of expanding police services at the Mission Bay campus site are analyzed in applicable sections of the EIR, including: Section 7.2, *Air Quality*, Section 7.6, *Greenhouse Gas Emissions*, Section 7.7, *Hazards and Hazardous Materials*, Section 7.8 *Hydrology and Water Quality*, Section 7.10, *Noise*, and Section 7.14, *Transportation and Traffic.*

As discussed in Section 4.14, *Regional Setting*, the UCPD is the sole provider of law enforcement services on UCSF campuses, and their jurisdiction extends in a one mile radius from each campus boundary. While UCPD has a mutual aid agreement with the SFPD, the SFPD is generally only called where an unusual need for assistance is required. Daily campus population growth is not anticipated to substantially increase demand on SFPD services. As noted above under Impact PUB-LRDP-1, the City is currently constructing a new Public Safety Building in Mission Bay that will also become the new SFPD headquarters and as well as the new Southern District Station.

Because construction-impacts from expanding UCPD facilities at the Mission Bay campus site are either less than significant or reduced to less-than-significant through mitigation measures discussed elsewhere in this EIR, and since no new SFPD facilities would be necessary to accommodate increased demand for law enforcement services, implementation of the 2014 LRDP would not result in any significant impacts to police facilities.

Mitigation: None required.

Impact PUB-LRDP-3: Implementation of the 2014 LRDP 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)

The estimated number of future students that would be anticipated as a result of proposed residential development under the 2014 LRDP was derived by multiplying the number of students

per dwelling unit (the Student Yield Factor) by the number of proposed dwelling units (852 units). The California State Allocation Board Office of Public School Construction reports that the statewide student yield factor per dwelling unit is 0.5 students for grades K through 6 and 0.2 students for grades 7 through 12, resulting in a unified school district average of 0.7 students per household. Using that yield factor, construction of up to 852 units would result in an increase of approximately 596 new students. However, this is likely over estimated as the potential residents in campus housing would be overwhelmingly graduate students with fewer children than the general population. In addition, many of the proposed dwelling units would be single-occupancy units.

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. UCSF currently has 108 children living in student housing at the Parnassus Heights campus site and 67 children at the Mission Bay campus site. At LRDP horizon in 2035 UCSF, estimates that an additional approximately 136 children could potentially reside in UCSF housing on these campus sites.

Schools in the SFUSD would be able to accommodate the potential increase in student population. As such, the 2014 LRDP would have a less than significant impact on the SFUSD and would not require the construction of new or expanded school facilities. Additionally, UCSF has a Contribution Agreement with SFUSD stating that the District has rights to develop a new school site on Block 14 at the Mission Bay campus site until 2027, if it is determined that one is needed to serve future development in the area.

Mitigation: None required.

References

UCSF, Police Department, UC Police Department Reports Dashboard, Annual Report 2012.

5.13 Recreation Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that the potential effects regarding the increased use of parks and other recreational facilities would occur only as a result of implementation of the LRDP proposals at specific campus sites.

The Initial Study determined that population growth at the Parnassus Heights, Mount Zion and Mission Center campus sites would not be substantial; therefore, the demand on existing recreational facilities resulting from an increased population at these campus sites would not result in substantial physical deterioration of such facilities. As there are not currently any recreational facilities proposed at the Mount Zion or Mission Center campus sites, the Initial Study determined that no impacts from constructing recreational facilities would occur at either of these sites.

Impact REC-LRDP-1: Implementation of the 2014 LRDP 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)

Under the 2014 LRDP, residential development of approximately 523 units is proposed at the Mission Bay campus site, which could result in an increased demand for recreational facilities by new residents. It is anticipated that these students and other residents would primarily use the existing on-site campus recreation facilities. The increase in population resulting from the growth at the Mission Bay campus site is small relative to the amount of growth expected to occur in the larger Mission Bay area; as such, development proposed by the 2014 LRDP would not cause a significant increase in demand for recreation services on or near the campus site.

The students, faculty and staff, who commute to the Mission Bay campus site from various other parts of San Francisco and the greater Bay Area, as well as patients and visitors, are primarily served by other recreation facilities near their homes. Presumably, their use of recreational facilities on or near the Mission Bay campus site would be passive in nature and cause minimal increases in demand for recreation services on or near the Mission Bay campus site. As part of the development of the Mission Bay campus site, UCSF is required to construct 8 acres of publicly accessible open space.

As the population of the campus grows over time, the 2014 LRDP acknowledges that campus life improvements would also be necessary, including additional outdoor recreation areas, fitness facilities and open space. It is anticipated that the 2014 LRDP growth assumptions and space needs include adequate space to meet future demand for recreational facilities and open spaces at the Mission Bay campus site.

Mitigation: None required.

Impact REC-LRDP-2: The 2014 LRDP includes new recreational facilities, the construction of which could have an adverse impact on the environment (Less than Significant)

The 2014 LRDP proposes to construct three new trails within the Mount Sutro Open Space Reserve (Reserve) to enhance and improve access for visitors. In general, construction of new trails would require minimal vegetation removal, minor amounts of grading and the installation of new trail markers. The Sunset Trail, proposed on the northwest side of the Reserve, could involve the construction of a stairway. Due to the time-limited nature of construction, construction-related impacts in any single location would be temporary. Mitigation Measures BIO-PH-1a through BIO-PH-1f, which would mitigate potential adverse effects on special-status plants and animals in the Reserve, are presented and discussed in Section 6.3, *Biological Resources.* Compliance with mitigation measures and other construction-related regulatory requirements discussed in other sections of the EIR, including Section 6.2, *Air Quality*; Section 6.3, *Biological Resources*; Section 6.5, *Geology, Soils, and Seismicity*; Section 6.7, *Hazards and Hazardous Materials*; Section 6.8, *Hydrology and Water Quality*; Section 6.10, *Noise*; and Section 6.14, *Transportation and Traffic,* would reduce construction related effects of new recreational facilities to less than significant levels.

The 2014 LRDP proposes the construction of a full-size multi-purpose sports field at the Mission Bay campus site, which would provide outdoor recreation and fitness space between the existing community center and future housing site. Construction activities for the proposed sports field have been evaluated as part of the overall implementation of the 2014 LRDP. Due to the time-limited nature of construction, construction-related impacts in any single location would be temporary. Compliance with mitigation measures and other construction-related regulatory requirements discussed in other sections of the EIR, including Section 7.2, *Air Quality*; Section 7.3, *Biological Resources*; Section 7.5, *Geology, Soils, and Seismicity*; Section 7.7, *Hazards and Hazardous Materials*; Section 7.8, *Hydrology and Water Quality*; Section 7.10, *Noise*; and Section 7.14, *Transportation and Traffic,* would reduce construction related effects of new recreational facilities to less than significant levels.

Mitigation: None required.

5.14 Transportation and Traffic Impacts of the 2014 LRDP

The Initial Study prepared for the 2014 LRDP determined that implementation of the 2014 LRDP will not change existing air traffic volumes or affect existing air traffic patterns that would result in substantial safety risks. Therefore, no further study of air traffic patterns in the EIR is necessary.

2014 LRDP Plan-Level Impacts

Impact TRAF-LRDP-1: Implementation of the 2014 LRDP would be consistent with the primary goals of the City and County of San Francisco (CCSF) with respect to transportation and would not fundamentally conflict with the CCSF's Transit First Policy because the 2014 LRDP demonstrates reasonable efforts to continue transportation services (e.g., the UCSF Shuttles) that encourage alternatives to use of single-occupant automobiles. (Less than Significant)

There are many different factors that determine how people travel to/from work, including home location, work shifts, access to transit, and travel incentives and disincentives (e.g., how convenient or costly it is to park). A Transportation Demand Management (TDM) program is a set of policies and programs that include incentives, information, and education to encourage employees to commute to work by modes other than driving alone. The UCSF TDM program includes strategies that emphasize alternative commuting options, such as public transit, private shuttle service, biking, walking, and carpooling

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 the city
- 18 City CarShare vehicles, along with 1,500 UCSF members who can use these vehicles by scheduling their use on-line
- A fleet of 43 low-emitting alternative-fuel and hybrid vehicles, including cars, shuttles, golf carts, and trucks
- 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 planned at Mission Bay, where members would have access to bicycles (and a regional network of stations) provided by the Bay Area Air Quality District (construction is dependent on the City's ability to secure additional funding for the program)
- Over 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 employees participate in the pretax transit program that has saved UCSF employees over $700,000 on public transit commute costs in 2013

To minimize traffic generated by UCSF current and planned facilities, UCSF proposes to implement more-robust TDM measures. These measures were developed as part of an internal planning process to identify feasible TDM measures that could reasonably result in a reduction in UCSF-generated single-occupant vehicle (SOV) trips, given UCSF's already low SOV rate.[18] To accomplish this, UCSF would implement some or all of the following in the 2014 LRDP:

- Expand UCSF Vanpool Program (add new vanpools and subsidize costs to attract new riders);
- Develop more-robust UCSF Carpool Matching and convert additional parking spaces to carpool only;
- Enhance existing City CarShare pods on campus sites and participate in the city's new Medical Center Rideshare program;
- Increase supply and access to bicycle parking and showers/lockers;
- Enhance shuttle system with Wi-Fi and Next Bus;
- Limit parking for non-faculty tenants in new housing;
- Gradually increase cost of employee parking over time; and
- Promote flexible work schedules, as possible.

Key Goals of the proposed LRDP that address reduced trip generation and are consistent with the goals of the Transportation Element of the San Francisco General Plan include:

- Enhance UCSF's Transportation Demand Management program and encourage its faculty, staff and students to use alternative modes of travel to driving alone to campus sites.
- Prioritize parking for patients and essential healthcare providers.
- Reduce congestion and truck deliveries to campus sites through transportation improvement measures.

[18] At present, less than 35% of all UCSF-generated trips are by single-occupant vehicle.

- Direct, aesthetic, and experiential pedestrian connectivity is stressed in the UCSF 2010 Physical Design Framework and will be considered as buildings and open space are developed.
- Consider the needs of pedestrians on public streets, particularly Parnassus Avenue at Parnassus Heights, Fourth Street at Mission Bay, and Sutter Street at Mount Zion, that pass through campus sites and have UCSF shuttle and Muni stops.

Because UCSF would continue to implement and expand transportation control measures consistent with CCSF's Transit First Policy, adoption of and development under the 2014 LRDP would not be considered to fundamentally conflict with those goals and would have a less-than-significant impact.

Mitigation: None required.

Impact TRAF-LRDP-2: Implementation of the 2014 LRDP could cause substantial adverse impacts to traffic flow, circulation and access as well as to transit, pedestrian, and parking conditions during demolition and construction activities. (Potentially Significant)

Implementation of the 2014 LRDP would be spread over the next twenty years and would preserve UCSF's operations during the construction period. The construction of LRDP projects would begin with the demolition of small buildings at the Parnassus Heights campus site in 2015 to the construction of Phase 2 of the UCSF Medical Center at the Mission Bay campus site after 2035.

It is estimated that construction activity associated with the 2014 LRDP would generate an average of as few as 10 truck trips per workday, and as many as 40 truck trips per day (peak construction trip generation of approximately 90 truck trips per workday).

Some construction projects will result in a parking loss due to construction staging and/or restrictions and limit pedestrian access through the duration of construction; however project construction is temporary and will not result in long term impacts.

Construction-related activities would generally occur Monday through Friday, between 7:00 AM and 5:00 PM, and the typical work shift for most construction workers would be from about 7:00 AM to about 3:30 PM. On rare occasions, construction could also occur during extended hours (5:00 PM to 8:00 PM) and on weekends (8:00 AM to 5:00 PM) on an as-needed basis, with advanced notice to neighbors.

It is anticipated that the addition of the construction truck trips, and worker-related vehicle- or transit-trips, potentially would have temporary adverse effects on transportation conditions (i.e., impacts on local intersections or the transit network). Construction workers who drive to the site and potential temporary parking restrictions along building frontages on Parnassus Avenue would cause a temporary increase in parking demand, and/or temporary parking restrictions along building frontages on city streets. Construction workers would park within nearby off-street parking facilities that currently have availability during the day, in satellite parking lots in which

UCSF would lease temporary parking spaces, or in temporary surface parking lots within undeveloped blocks.

Nonetheless, while construction of individual LRDP projects would by definition be temporary, the LRDP would unfold over the course of 20+ years and would require consideration of the effect of construction activities on existing and future transportation facilities (e.g. sidewalks, Muni service and facilities, roadways, bicycle routes, etc.) and existing and future adjacent land uses. Therefore, due to the magnitude of 2014 LRDP development and the need for on-going coordination and monitoring, the 2014 LRDP construction-related transportation impacts would be considered potentially significant. **Mitigation Measure TRAF-LRDP-1** would reduce these impacts to less-than-significant levels.

Mitigation Measure TRAF-LRDP-1: Construction Coordination and Monitoring Measures.

Traffic Control Plan for Construction –In order to reduce potential conflicts between construction activities and pedestrians, transit and autos during construction activities at the four campus sites, 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 its 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 (Parnassus Heights), Sutter Street (Mount Zion), etc.) and other measures to reduce potential traffic and transit disruption and pedestrian circulation effects during major phases of construction of the 2014 LRDP Projects. For any work within the public right-of-way, the contractor would be required to comply with the City of San Francisco's Regulations for Working in San Francisco Streets (the Blue Book), 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. [19] In addition to the regulations in the Blue Book, UCSF shall require the construction contractor(s) to comply with all state and federal codes, rules and regulations.

In the event that the construction timeframes of the major phases and other development projects adjacent to UCSF overlap, such as the adjacent proposed development at Mission Bay Blocks 29-32, UCSF shall coordinate with City Agencies through the Transportation Advisory Staff Committee (TASC) and the adjacent developers to minimize the severity of any disruption to adjacent land uses and transportation facilities from overlapping construction transportation impacts. UCSF, in conjunction with the adjacent developer, shall propose a construction traffic control plan that includes measures to reduce potential construction traffic conflicts, such as staggering start and end times, coordinated material drop offs, collective worker parking and transit to job site and other measures.

Reduce SOV 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 Traffic Control Plan for Construction methods to encourage walking, bicycling, carpooling and transit access to the campus sites by construction workers in the coordinated plan.

[19] The SFMTA Blue Book, 8th Edition (2012), is available online through SFMTA (sfmta.com).

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 adjacent businesses with regularly-updated information regarding project construction, including construction activities, peak construction vehicle activities (e.g., concrete pours), travel lane closures, and lane closures via a newsletter and/or website.

Significance after Mitigation: Less than Significant

2014 LRDP Development Site-Specific Impacts

Impact TRAF-LRDP-3: Implementation of the 2014 LRDP would result in temporary increases in traffic volumes on roadways in the vicinity of each of the four campus sites during demolition and construction activities. (Potentially Significant)

Although the effects of construction and demolition activities on transportation at the campus sites would be considered potentially significant due to the magnitude of development and the need for on-going coordination and monitoring, the implementation of Mitigation Measure TRAF-LRDP-1: Construction Coordination and Monitoring Measures would reduce construction-period impacts to less-than-significant levels, as discussed above under Impact TRAF-LRDP-2.

Mitigation Measure: Implement **Mitigation Measure TRAF-LRDP-1**

Significance after Mitigation: Less than Significant

Impact TRAF-LRDP-4: Implementation of the 2014 LRDP would increase traffic (vehicles, transit ridership, pedestrian and bicycle volumes) on the roadway network that serves each of the four campus sites, as well as increase loading and parking demand. (Less than Significant)

As detailed in the impact analyses in Sections 6.14, 7.14, 8.14 and 9.14 of this EIR, implementation of the 2014 LRDP would not result in significant impacts to traffic, transit, pedestrian, bicycle, loading or parking conditions, and no mitigation measures are required.

5.15 Utilities and Service Systems Impacts of the 2014 LRDP

UCSF is an urban institution with campus sites throughout the City of San Francisco and some locations beyond the city limits. UCSF occupies building space in both owned and leased buildings. Each UCSF site in San Francisco relies on utilities and services provided by the City that surrounds it. At the Parnassus Heights, Mount Zion and Mission Center campus sites, development under the 2014 LRDP would occur as replacement or in-fill on otherwise built-out sites and the necessary City utilities have long been in place with sufficient capacities to serve those sites and the proposed 2014 LRDP development. At the Mission Bay campus site, development under the 2014 LRDP would occur primarily as new construction on vacant land; however, these vacant sites lie within the Mission Bay Redevelopment Area, where development at this scale has been planned by the City and provisioned with utilities and services adequate to serve the planned development. As a result of these actions, potential adverse effects to utilities or services usually are less than significant.

Impact UTIL-LRDP-1: There would be sufficient water supplies available to serve the 2014 LRDP from existing entitlements and resources and no new or expanded water treatment facilities would be required. (Less than Significant)

Under the Water Supply Assessment law (Sections 10910 through 10915 of the California Water Code), urban water suppliers like the San Francisco Public Utilities Commission (SFPUC) must furnish a Water Supply Assessment (WSA) to the city or county that has jurisdiction to approve the environmental documentation for certain qualifying projects (as defined in Water Code Section 10912 (a)) subject to CEQA. While UCSF is not subject to the WSA law, as the lead agency for the 2014 LRDP, UCSF voluntarily requested preparation of a WSA as part of its cooperative planning with the City and to inform the EIR.

UCSF currently occupies approximately 8.04 million gsf in owned space and leased space in San Francisco. By 2035, UCSF's total space would be about 12.37 million gsf, an increase of about 4.33 million gsf. Of this increase, about one-third or 1,482,800 gsf was not previously identified in the SFPUC's 2010 Urban Water Management Plan (UWMP).

As discussed in the WSA, the City currently projects a retail demand in 2035 of 84.2 million gallons per day (mgd), which represents a 3.3 mgd, or 4%, increase over the 2035 demand projections estimated in the UWMP.

The net new water demand associated with growth under the 2014 LRDP is projected to be 0.14 mgd. The total retail demand with inclusion of 2014 LRDP demand is projected to be 84.3 mgd, which represents a 3.4 mgd, or 4%, increase over the 2035 projections. The SFPUC concluded that there are adequate water supplies to serve the 2014 LRDP demand and cumulative retail water demands during normal years, single dry years and multiple dry years over a 20-year planning horizon from 2015 through 2035. In addition, as discussed in Section 4.15.2, UCSF recently published the 2014 Water Action Plan in order to fulfill the UC *Policy on Sustainable*

Practice's goal of reducing the University's per capita water consumption by 20% in 2020. UCSF has also committed to other water use reduction measures in response to the Governor's emergency drought declaration and the UC President's request for immediate implementation of short-term measures. Therefore, water demand anticipated under the 2014 LRDP would be met by available supplies and no new or expanded water treatment facilities would be required; the impact would therefore be less than significant.

Discussion of water supply infrastructure necessary to serve growth resulting from the 2014 LRDP at the Mission Bay campus site is presented in Section 7.15.

Mitigation: None required.

Impact UTIL-LRDP-2: The wastewater treatment provider has adequate capacity to serve UCSF's projected demand resulting from implementation of the 2014 LRDP and no new or expanded wastewater treatment facilities would be required. (Less than Significant)

Assuming wastewater generation as 90% of water usage, the overall increase in wastewater resulting from the 4.33 million gsf increase associated with the 2014 LRDP would be roughly 0.38 mgd.[20] Wastewater flows from the Mission Bay, Mount Zion and Mission Center campus sites represent over 95% of future UCSF flows based on the location of growth proposed under the 2014 LRDP. Wastewater from these three campus sites would be directed to the Southeast Water Pollution Control Plant (SEWPCP). The increase in flows to the SEWPCP from the Mission Bay, Mount Zion and Mission Center campus sites would be approximately 0.01% over existing average dry weather flows of 63 mgd at this facility. Increased wastewater flows from the Parnassus Heights campus site would be approximately 0.02 mgd and would be directed to the Oceanside treatment plant. Therefore, overall wastewater generated at 2014 LRDP horizon would not be substantial and could be met by existing capacity. The 2014 LRDP would not result in a determination by the SFPUC that it has inadequate capacity to serve the projected demand, and the impact would be less than significant.

Discussion of wastewater infrastructure necessary to serve growth resulting from the 2014 LRDP at the Mission Bay campus site is presented in Section 7.15.

Mitigation: None required.

Impact UTIL-LRDP-3: Implementation of the 2014 LRDP would not exceed the wastewater treatment requirements of the Regional Water Quality Control Board. (Less than Significant)

As discussed above under Impact UTIL-LRDP-2, implementation of the 2014 LRDP would increase wastewater flows from the main campus sites, but not to an extent that would cause the SFPUC's combined sewer system to exceed wastewater treatment requirements of the Regional Water Quality Control Board. The impact would be less than significant.

[20] As discussed under Impact UTIL-LRDP-1, water demand associated with one-third of 2014 LRDP growth is 0.14 mgd. Therefore, total water demand of the 2014 LRDP is roughly 0.42 mgd.

Mitigation: None required.

Impact UTIL-LRDP-4: Implementation of the 2014 LRDP would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

The proportion of impermeable surfaces at each respective campus site would not significantly change under development proposed by the 2014 LRDP. All campus site stormwater runoff would be directed to the City's combined sewer system (CSS), except for the Mission Bay campus site where stormwater flows are directed to the Bay. Other than standard pipeline connections and inlets to connect proposed buildings to existing stormwater conveyance facilities, no expansion of storm drainage facilities would be required under the 2014 LRDP. The impact would be less than significant.

Discussion of storm drainage infrastructure necessary to serve growth resulting from the 2014 LRDP at the Mission Bay campus site is presented in Section 7.15.

Mitigation: None required.

Impact UTIL-LRDP-5: UCSF is served by a landfill with sufficient permitted capacity to accommodate solid waste needs resulting from implementation of the 2014 LRDP and would comply with federal, state and local statutes and regulation related to solid waste. (Less than Significant)

Growth proposed under the 2014 LRDP would increase the amount of solid waste generated on UCSF campus sites. Solid waste would be generated during both construction of proposed facilities and during operation of campus sites over the lifetime of the 2014 LRDP. More than 80% of solid waste generated in San Francisco, is transported to the Altamont Landfill in Alameda County. The Altamont Landfill has a permitted peak maximum daily disposal of 11,150 tons per day and has an estimated remaining capacity of approximately 46 million cubic yards or 74% of its permitted capacity. The estimated closure date of the landfill is 2025. As discussed in Section 4.16, the City's contract with the Altamont Landfill expires in 2015. The City may award a future landfill disposal contract to the Recology Ostrom Road Landfill in Yuba County, which has a total design capacity of over 41 million cubic yards and an expected closure date of 2066. The ultimate determination with respect to future landfill contracting will be made by the Board of Supervisors on the basis of solid waste planning efforts being undertaken by the City's Department of the Environment.

Regardless of whether the City renews its contract with the Altamont Landfill, switches to the Ostrom Road Landfill, or selects another facility, UCSF employees, students, visitors and patients would continue to participate in UCSF's recycling and composting programs and other efforts to reduce the solid waste disposal stream. UCSF has consistently increased its landfill diversion rate, rising from 51% in 2009 to 64% in 2013, as it strives to meet the UC *Policy on Sustainable Practices* goal of zero waste by 2020. In addition, **Mitigation Measure GHG-LRDP-1** would

require that contractors recycle or reuse at least 50% of construction waste or demolition materials, thereby further reducing the amount of solid waste sent to area landfills.

Given the existing and anticipated increase in solid waste recycling and the existing and potential future landfill capacities, implementation of the 2014 LRDP would not result in a landfill exceeding its permitted capacity or non-compliance with federal, state, and local statutes and regulations related to solid waste. Therefore, this impact would be less than significant.

Mitigation: None required.

Impact UTIL-LRDP-6: Implementation of the 2014 LRDP would not result in the wasteful, inefficient and unnecessary consumption of energy. (Less than Significant)

Growth proposed under the 2014 LRDP would result in the increased consumption of energy through LRDP horizon in 2035. In 2012-2013, UCSF purchased 6,871,248 therms of natural gas from PG&E and used 41,560,148 kilowatt hours of electricity across all UCSF campus sites, totaling 829,388 million British Thermal Units (Btu) per year.

Construction under the 2014 LRDP would require energy for off-road equipment operation, vendor and construction worker vehicle trips and demolition haul trips. These sources would result in an increased energy demand, primarily for diesel fuel, as shown in **Table 5-10**.

Once constructed, development projects under the 2014 LRDP would increase energy demand for electricity and natural gas as well as gasoline for increased motor vehicle trips. The estimated increase in energy demand from increased operations under the 2014 LRDP also is presented in Table 5-10.

UCSF Energy Conservation

The introduction to CEQA Appendix F states that "The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include: (1) decreasing overall per capita energy consumption, (2) decreasing reliance on fossil fuels such as coal, natural gas and oil, and (3) increasing reliance on renewable energy sources."

Statewide efforts to control GHG emissions in accordance with California's Global Warming Solutions Act of 2006 (AB 32) – which requires the State of California as a whole to reduce GHG emissions to 1990 levels by the year 2020 – also result in progress toward each of these three energy conservation objectives. GHG control measures also seek to reduce per capita energy use and shift the reliance from fossil fuel to renewable energy sources. Meeting AB 32 GHG and climate requirements forces wide-ranging actions that directly and indirectly conserve energy. In addition, a number of other planning and policy practices, as well as measures that reduce other environmental impacts, also act to achieve one or more of these energy conserving objectives.

As well as controlling GHG emissions, the following UC system-wide policies directly and indirectly conserve energy, as described in CEQA Appendix F.

TABLE 5-10
ENERGY DEMAND FOR CONSTRUCTION AND OPERATION OF THE 2014 LRDP[a]

2014 LRDP Component	
Construction[b]	**million British Thermal Units (Btu)/year**
Parnassus Heights	12,200
Mission Bay	230,000
Mount Zion	2,260
Mission Center	5,030
Operation – Parnassus Heights	
Electricity	15,900[c]
Natural Gas	19,500[c]
Motor Vehicles[d]	9,930
Total Operational	45,330
Operation – Mission Bay	
Electricity	118,000
Natural Gas	103,000
Motor Vehicles	95,900
Total Operational	316,900
Operation –Mount Zion	
Electricity[c]	10,200
Natural Gas[c]	4,330
Motor Vehicles	8,450
Total Operational	22,980
Operation – Mission Center	
Electricity	6,310
Natural Gas	1,640
Motor Vehicles	4,050
Total Operational	12,000
Total Operational Energy - 2014 LRDP	397,210

[a] Project construction and operational energy estimates were made using CalEEMod, version 2013.2.
[b] Construction energy occurs over the entire LRDP horizon. A portion of construction energy use is construction worker trips. Some of these trips would be gasoline and not diesel.
[c] Includes demolition losses and renovation losses.
[d] Gasoline powered vehicles assumed. Per Air Resources Board, less than 1% of light duty auto trips in the Bay Area are diesel.

SOURCE: ESA, 2014.

UC Policy on Sustainable Practices

The UC *Policy on Sustainable Practices* sets the following requirements and goals relevant to GHG emissions reduction:

- Requires each campus to develop a long-term strategy for voluntarily meeting the requirements of California's Global Warming Solutions Act of 2006 (AB 32);
- Instructs campuses to aim for climate neutrality as soon as possible after achieving 2014 and 2020 reduction targets;

- Requires 20% better energy performance than Title 24 (policy maintained as Title 24 is revised) for new construction and renovations, and strives to achieve 30%;
- Requires new laboratory buildings to meet Labs21 Environmental Performance Criteria (EPC);
- All new construction and major renovations projects must meet a minimum standard of LEED-NC Silver and strive for LEED-NC Gold when possible;
- The University will use energy efficiency retrofits to reduce system-wide energy consumption by 10% or more, from 2000 baseline, by 2014;
- Renovation projects greater than $5 million that do not quality for LEED-NC must be certified under LEED-CI;
- Renovation projects that require 100% equipment replacement, and 50% non-shell areas, must achieve LEED Silver at a minimum and strive for Gold;
- Each campus will submit one pilot LEED-EBOM building for certification by July 1, 2014;
- University system will provide up to 10 MW capacity of on-site renewable energy by 2014 (approximately 1 MW per UC campus);
- Develop goals for reducing transportation-related GHG's and report on progress annually;
- Expand Transportation Demand Management (TDM) programs and projects;
- Divert 50% solid waste by 2008, 75% by 2012, and achieve zero waste by 2020 (defined as diverting 95% or more of municipal solid waste);
- Develop Water Action Plan and reduce water consumption by 20% by 2020;
- All new buildings must achieve at least two points in LEED NC Water Efficiency category;
- Maximize procurement of environmentally preferable products and services; and
- Purchase 20% sustainable food products by 2020.

UCSF's Sustainability 2.0 (2014-2020) Plan implements the UC *Policy on Sustainable Practices* in the areas of green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, and sustainable water systems.

UC Carbon Neutrality by 2025

The UC President has set a goal for UC to become carbon neutral by 2025 and purchase only clean energy. This goal has not been formally adopted by the Regents as a policy, but UC is actively working on the President's initiative to be the first major research university to achieve carbon neutrality.

UCSF Climate Action Plan (2009)

As part of implementing the UC *Policy on Sustainable Practices*, UCSF has developed a Climate Action Plan, 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. The Climate Action Plan

also addresses the UCOP goals of reducing GHG emissions to 2000 levels by 2014; and attaining climate neutrality as soon as possible after achieving the 2014 and 2020 reduction targets. GHG emissions inventories are included for the years 1990, 2000 and 2008. The Climate Action Plan forecasts future emissions and assesses the impact of UCSF sustainability policies and programs on future GHG emissions and the prospects for achieving GHG reduction goals. The Climate Action Plan concludes that UCSF is expected to meet the goal of reducing GHG emissions to 2000 levels by 2014, but that the goal of reducing 1990 levels by 2020 would not likely be met without the use of additional reduction measures or carbon offsets.

UC Strategic Energy Plan

The UC Strategic Energy Plan (SEP) was prepared in 2008 for all UC campuses, to fulfill a goal of the UC *Policy on Sustainable Practices* to implement energy efficiency projects in existing buildings. The UCSF portion of the plan 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 to be updated regularly by each campus to evaluate the feasibility of additional energy-saving measures.

Annual GHG Inventory Reporting

The UC *Policy on Sustainable Practices* requires each campus to report its GHG emissions inventory to an independent reporting organization. UCSF emissions inventories reported to outside agencies are verified by accredited independent auditors. Since 2008 UCSF has also been required to report emissions from the Parnassus Heights Central Utility Plant to the California Air Resources Board (CARB) under the AB 32 Reporting Rule. UCSF tracks and reports its progress towards meeting its GHG emissions goals in its Annual Sustainability Report. USCF also reports to the UC Regents annually on its progress in meeting the goals in the UC *Policy on Sustainable Practices*.

GHG Reduction Strategy (see Appendix D)

UCSF has prepared a GHG Reduction Strategy, in conjunction with the 2014 LRDP to ensure that the implementation of the LRDP aligns with the UC *Policy on Sustainable Practices*; in particular the policies on greenhouse gases and the requirements of AB 32. The GHG Reduction Strategy, includes two categories of GHG reduction measures: those to which UCSF is currently committed to in terms of funding and/or implementation (called "Tier 1" measures), and those that are in the planning stages (called "Tier 2" measures). Tier 1 measures include the following energy-related strategies:

- ***Strategy EN1: Improve Energy Efficiency of Existing Buildings and Operations.*** Since the early 1990's UCSF has periodically written Strategic Energy Plans (SEPs) to identify and prioritize implementation of campus investments in energy efficiency projects for existing buildings and infrastructure. The SEP considers UCSF facilities 50,000 gsf or larger for application of new efficiency technologies, implementation of best practices and available financial incentive programs. SEP projects cover a wide range of types of

improvements, from changing lighting fixtures to building new power plants. Lighting and HVAC (Heating Ventilation and Air Conditioning) projects are particularly effective at reducing energy usage. While the University continues to expand the use of laboratory fume hoods to minimize health risks, the SEP includes projects for upgrading fume hoods with more energy efficient, high-performance models. Between 2009 and 2013, implementation of SEP projects has saved more than 12,000 MW-h of electricity and more than 1,700,000 therms of natural gas.

- ***Strategy EN2: Green Building Standards.*** The *UC Policy on Sustainable Practices* states that the University incorporates the principles of energy efficiency and sustainability in all capital and renovation projects within budgetary constraints and programmatic requirements. Given the importance of energy efficiency to green building design, the University has set a goal for all new building projects, other than acute-care facilities, to outperform the required provisions Title 24 energy-efficiency standards by at least 20 percent.[21] UCSF is committed to designing and constructing all new buildings (except for laboratory and acute care facilities, addressed separately below) so as to meet a minimum standard of sustainability that is equivalent to a LEED-NC Silver rating, and will continue to strive to achieve a standard equivalent to a LEED-NC Gold rating or higher, within the constraints of program needs and standard budget parameters. Central to its academic mission, research laboratories make up a large percentage of the new space proposed under the 2014 LRDP. These types of facilities contain specialized equipment that consume significantly more energy per square foot than the average building. Given the importance of specifically addressing sustainability in laboratory facilities, UCSF has also committed to designing all new laboratory buildings to a minimum standard equivalent to a LEED-NC Silver rating and the Laboratories for the 21st Century (Labs21) Environmental Performance Criteria (EPC), as appropriate.

- ***Strategy EN3.1: Renewable Energy: On-Site Solar PV.*** UCSF is planning to install a 750 kilowatt (kW) solar photovoltaic (PV) plant at the Medical Center at Mission Bay to be operational by 2020. Other solar PV projects at UCSF are expected to add 1,465 kW over the 20-year LRDP horizon.

Given the continuing and proposed actions by UCSF to decrease overall per capita energy consumption, decrease reliance on fossil fuels, and increase reliance on renewable energy sources, growth under the 2014 LRDP would not result in the wasteful, inefficient use of energy; effects related to energy consumption would not be significant.

Mitigation: None required.

Impact UTIL-LRDP-7: Implementation of the 2014 LRDP could result in the construction of new electrical or natural gas facilities, which could cause significant environmental effects. (Less than Significant)

UCSF is considering a central utility plant (CUP) on a portion of Block 16 on the Mission Bay campus site, potentially using cogeneration technology, as well as a redundant utility distribution loop for steam, chilled water and high-temperature hot water, to help ensure that utility supplies to future buildings on the North Campus are not interrupted should a break or power outage in

[21] Although the Title 24 building code does not apply to hospitals, new UCSF medical facilities must be designed to a LEED-Silver standard or higher, which achieves energy savings similar to Title 24. The Medical Center at Mission Bay is being designed to a LEED-Gold standard.

existing lines occur. Because the design of the CUP has not been completed, the specific operating characteristics of this possible facility cannot be analyzed at this time. Subsequent CEQA review would be necessary once CUP designs become available.

Mitigation: None required.

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