
4.0 CUMULATIVE IMPACTS

4.1 CUMULATIVE SIGNIFICANCE CRITERIA

This cumulative impact analysis was developed to be consistent with guidance published by the Council on Environmental Quality (CEQ) (January 1997) and the U.S. Environmental Protection Agency (May 1999). In addition, CEQ issued further guidance to federal agencies in June 2005 regarding the consideration of past actions in analyses of cumulative effects. The guidance directs the agency preparing a National Environmental Policy Act (NEPA) document to determine what relevant information pertaining to past actions could be useful in illuminating or predicting the reasonably foreseeable direct and indirect effects of a proposed action (CEQ, 2005).

A cumulative impact is the effect on the environment that could result from the incremental impact of the proposed action when added to other past, present, or reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over time. Accordingly, a cumulative impact analysis identifies and defines the scope of other actions and their interrelationship with the proposed action or its alternatives if there is an overlap in space and time.

4.2 CUMULATIVE ANALYSIS APPROACH

The process of analyzing cumulative effects involves the traditional components of an environmental impact assessment: scoping, describing the affected environment, and determining the environmental consequences (CEQ, 1997). For a summary of cumulative environmental impacts, see the end of this chapter.

4.2.1 Cumulative Projects

Scoping of cumulative projects for this EIS entailed contacting the following agencies for information regarding past, ongoing, and reasonable foreseeable actions near the locations of the EIS Alternatives that would be appropriate to analyze in combination with the EIS Alternatives:

- National Park Service, Golden Gate National Recreation Area (NPS GGNRA)
- San Francisco Planning Department (SF Planning)
- City and County of San Francisco as a Successor to San Francisco Redevelopment Agency (SF Redevelopment)
- San Francisco Recreation and Park Department (SFRPD)
- San Francisco Public Utilities Commission (SFPUC)
- San Francisco Department of Public Works
- Transbay Joint Powers Authority
- Port of San Francisco (SF Port)
- University of California, San Francisco (UCSF)

Projects identified as having the potential to contribute incrementally to cumulative environmental impacts are shown in Figures 4-1 and 4-2 and listed in Tables 4-1 and 4-2.¹ These listed projects were completed

¹ Where applicable, environmental analysis of the projects listed in Tables 4-1 and 4-2 has been or will be conducted separately, with the results of those analyses incorporated into environmental review documents prepared specifically for these projects.

recently² or are anticipated to be completed within the next 30 years.³ The cumulative projects listed in Table 4-1 were used to determine the cumulative impacts associated with the existing SFVAMC Fort Miley Campus (Alternatives 1 and 2 and the Alternative 3 short-term projects). The cumulative projects listed in Table 4-2 were used to determine the cumulative impacts of the potential new SFVAMC Mission Bay Campus (Alternative 3 long-term projects).

Alternative 3 consists of short-term projects at the existing SFVAMC Fort Miley Campus and long-term projects at the potential new SFVAMC Mission Bay Campus. Alternative 3 short-term projects are identical to Alternative 1 short-term projects; therefore, the cumulative impacts associated with the short-term projects of Alternatives 1 and 3 are identical. No cumulative impact analysis for the No Action Alternative (Alternative 4) is necessary, because no project would contribute toward potential cumulative impacts.

4.2.2 Cumulative Context

To describe the affected environment as it relates to cumulative projects for this EIS, the following context was identified for each EIS resource area: geographic area, time frame, and type of projects.

4.2.3 Cumulative Impact Methodology

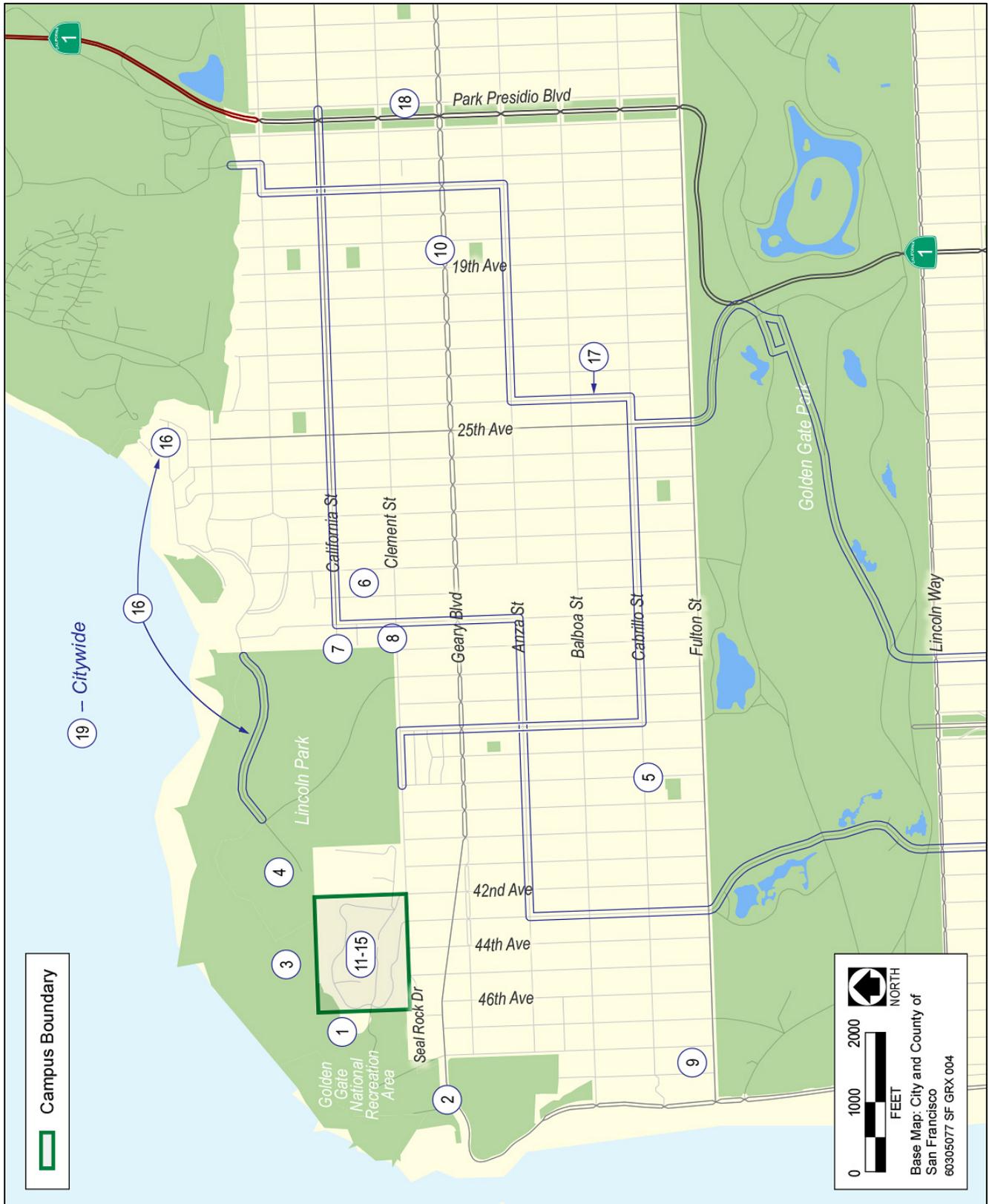
Once the context was established, relevant cumulative projects listed in Tables 4-1 and 4-2 that could contribute to cumulative construction-related or operational impacts were identified for each analysis resource. The cumulative projects relevant to a particular resource were then referred to in the analysis of that resource as the “identified cumulative projects.” Thus, the cumulative projects identified in this chapter vary by resource, and sometimes by whether they apply to construction-related or operational impacts. Because no overall impact areas resulted in a conclusion of “no impact” at the Proposed Action level, all impact areas were assessed for cumulative impacts.

Finally, to determine the cumulative environmental impacts for the EIS Alternatives, the following process was followed for each resource area for both the construction and operational phases:

- For each EIS Alternative, determine whether an adverse cumulative impact could occur. (If not, the cumulative impact would be minor.)
- For any adverse cumulative impacts, determine whether an EIS Alternative’s contribution to the cumulative impact would be considerable. (If not, the cumulative impact would be minor.) To determine whether the contribution of the Alternative would be cumulatively considerable, the following factors were considered: absolute size of the contribution; relative size of the contribution; comparative size of the other contributors; effect of the contribution, or effect combined with other contributors, on the environment; and ability to mitigate the impact if this type of contribution were not mitigated.
- For any cumulatively considerable impacts, provide feasible mitigation measures to avoid or minimize an Alternative’s contribution to the adverse cumulative impact.

² “Recent” projects are those completed in the past 15 years.

³ CEQ regulations do not require agencies to catalogue or exhaustively list and analyze all individual cumulative projects; rather, agencies must summarize the most pertinent cumulative projects. However, cumulative projects included in Tables 4-1 and 4-2 are reasonably foreseeable.



Sources: Aviles, pers. comm., 2011; Beyer, 2011; Lindsay, pers. comm., 2011; Pearson, pers. comm., 2014; SFPUC, 2013, 2014a, 2014b, and 2014d; SF Planning, 2014; data compiled by AECOM in 2014

Figure 4-1: Cumulative Projects in the Vicinity of the SFVAMC Fort Miley Campus

Table 4-1: Cumulative Projects in the Vicinity of the SFVAMC Fort Miley Campus

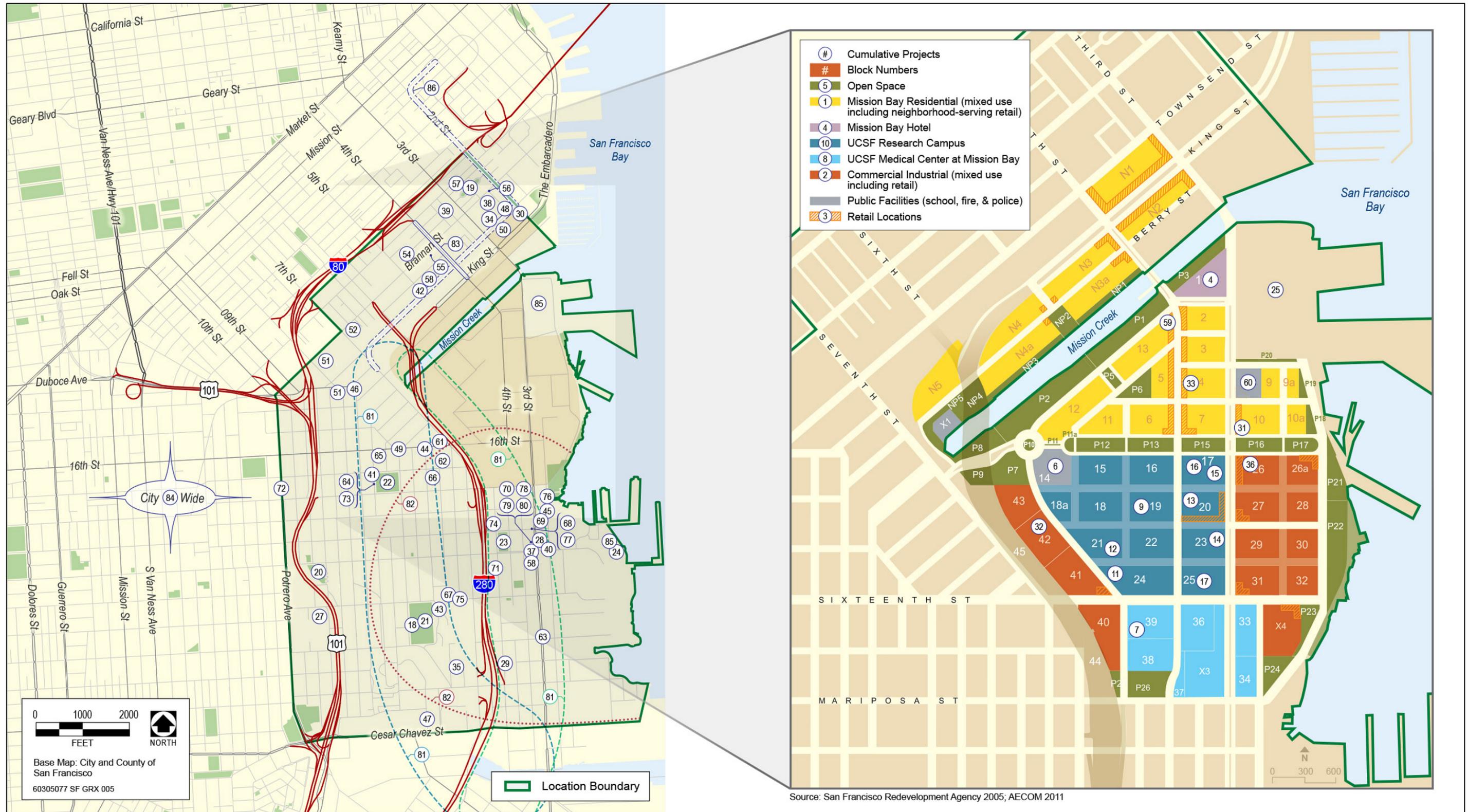
Project No.	Agency Jurisdiction	Project Name and Location	Approved or Proposed Uses	Completion Date
1	National Park Service	<i>USS San Francisco</i> Memorial Parking Lot Renovation (within NPS GGNRA lands)	Renovation of <i>USS San Francisco</i> Memorial parking lot	Completed in 2011
2	National Park Service	Merrie Way Visitor Center (within NPS GGNRA lands)	Development of 4,000-sf visitor center (including gift shop, food service, and bathrooms) adjacent to Merrie Way parking lot	Completed in 2012
3	National Park Service	Golden Gate National Recreation Area Dog Management Plan (within NPS GGNRA lands)	Allowance of on-leash dogs along some GGNRA trails within the East Fort Miley area	2012 and beyond
4	National Park Service	Golden Gate National Recreation Area General Management Plan (within NPS GGNRA lands)	Preservation and enhancement of historic structures and landscapes. East and West Fort Miley landscape and access improvements to enhance appearance and better connect sites to their surroundings, including the community, Lands End, and the SFVAMC Fort Miley Campus. Improvement of picnicking and group camping facilities and opportunities for outdoor learning and leadership programs. Development of safe and more direct vehicle and trail access to East Fort Miley to better support future use and preservation. If maintenance functions were to be relocated to a more suitable site, historic structures could be made available for environmental education or other public uses. Enhancement of West Fort Miley setting for outdoor learning and leadership. Rehabilitation of Marine Exchange Lookout Station (Octagon House) to interpret history and provide for park or public uses	2015 and beyond
5	SFRPD	Cabrillo Playground Renovation (38th Avenue and Cabrillo Street)	Repair and renovation of the clubhouse, upgrade to the children's play areas, renewal of the picnic areas, and improvement of the courts	Completed in summer 2013
6	SFRPD	DuPont Tennis Courts Restroom Renovation	Renovation or replacement of restrooms at the DuPont Tennis Courts	(Currently on hold)
7	SFRPD	Lincoln Park Steps Improvement	Potential accessibility improvements to the steps and preparation of steps, bench, and retaining walls to receive ceramic tiles	Completed in 2015
8	SF Planning	Albertsons Reuse (3132 Clement Street)	Conversion of a 43,800-sf, vacant Albertsons to a CVS Pharmacy and Fresh & Easy Market	Completed in 2011
9	SF Planning	Safeway Redevelopment (850 La Playa Street)	Demolition of a 40,000-sf Safeway and construction of a 65,000-sf grocery store, 49 residential units, and a 3,500-sf retail building	2017
10	SF Planning	5400 Geary Boulevard	Reuse of commercial uses and construction of 39 residential units and a restaurant	Completed in 2013
11	SFVAMC	Geothermal System	Installation and operation of suitable, appropriately	Completed in

Table 4-1: Cumulative Projects in the Vicinity of the SFVAMC Fort Miley Campus

Project No.	Agency Jurisdiction	Project Name and Location	Approved or Proposed Uses	Completion Date
		(SFVAMC Fort Miley Campus)	sized, engineered ground-source heat pump (geothermal) systems in, and associated with, up to eight buildings	2014
12	SFVAMC	Solar Photovoltaic System (SFVAMC Fort Miley Campus)	Installation and operation of a solar photovoltaic system including up to seven rooftop and parking structure locations	Completed in fall 2013, and ongoing
13	SFVAMC	North Slope Seismic/Geologic Stabilization (SFVAMC Fort Miley Campus)	Construction of two retaining walls and stormwater drainage improvements on the northern Campus perimeter and grounds	Completed in December 2011
14	SFVAMC	Electrical System Upgrade Exterior Work (SFVAMC Fort Miley Campus)	Repair, replacement, and installation of primary or secondary electrical distribution systems	Completed in August 2012
15	SFVAMC	Mental Health Patient Parking Addition (SFVAMC Fort Miley Campus)	Construction of a two-story parking garage structure (also known as Building 212) with 160 spaces on the SFVAMC Fort Miley Campus near the main Campus entrance	Completed in December 2011
16	SFPUC	Baker Beach Green Streets	Construction of a green infrastructure project to manage stormwater at Baker Beach at two locations: (1) El Camino del Mar between the Legion of Honor and the Lands End Trailhead and (2) on Sea Cliff Avenue from 26th Avenue to 25th Avenue	Summer 2016
17	SFPUC	Westside Recycled Water	Construction of a pipeline associated with delivery of recycled water for irrigation uses in the Presidio and golf courses	April 2019
18	SFPUC	Emergency Firefighting Water System (also known as Auxiliary Water Supply System) Seismic Upgrades	Seismic upgrade of the City's Emergency Firefighting Water Supply System, including pipeline replacement (i.e., possible Richmond Pipeline Extension along 43rd Avenue, Anza Street, 32nd Avenue, and California Street) and cistern construction, among other projects	2034–2046, depending on the alternative chosen
19	SFPUC	Wastewater Enterprise Renewal and Replacement Program	Ongoing work to address deficiencies in the collection system and treatment facilities throughout San Francisco, involving sewer repair and replacement	Ongoing
			Net Total of 4,000 sf of visitor center uses, 28,500 sf of commercial uses, 160 parking spaces, and 88 residential units	

Notes: City = City and County of San Francisco; GGNRA = Golden Gate National Recreation Area; NPS = National Park Service; sf = square feet; SF Planning = San Francisco Planning Department; SFPUC = San Francisco Public Utilities Commission; SFRPD = San Francisco Recreation and Park Department; SFVAMC = San Francisco Veterans Affairs Medical Center
Sources: Aviles, pers. comm., 2011; Beyer, pers. comm., 2011; Olsen, pers. comms., 2011 and 2014; data provided by SFVAMC in 2011; Pearson, pers. comm., 2014; SFPUC, 2013, 2014a, 2014b, and 2014d; SF Planning, 2014.

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Source: Reilly, pers. comm., 2011; Wong, pers. comm., 2011; Beyer, pers. comm., 2011; Beaupre, pers. comm. 2011; Lindsay, pers. comm., 2011; Olsen, pers. comms., 2011 and 2014; SF Planning, 2014; Pearson pers. comm., 2014; SF Port, Undated; SFPUC, 2012, 2013, 2014c, and Undated; TA, 2015; data compiled by AECOM in 2014

Figure 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
1	City and County of San Francisco as Successor to SF Redevelopment	Mission Bay North and South Redevelopment Project Areas (303 acres of land between San Francisco Bay and Interstate 280)	Development of 6,000 housing units, with 1,700 (28%) affordable to moderate-, low-, and very-low-income households on Blocks 2–7, 9–13, and N1–N5	2030
2	City and County of San Francisco as Successor to SF Redevelopment	Mission Bay North and South Redevelopment Project Areas (303 acres of land between San Francisco Bay and Interstate 280)	Development of 3.9 million sf of office/life science/biotechnology commercial space on Blocks 26–32, X3, 36, and 38–43; includes the Warriors Arena, 5.5-acre park, 90,000 sf retail, and two office/lab towers on Blocks 29–32	2022
3	City and County of San Francisco as Successor to the SF Redevelopment	Mission Bay North and South Redevelopment Project Areas (303 acres of land between San Francisco Bay and Interstate 280)	Development of 500,000 sf of city and neighborhood-serving retail space along Fourth Street on the Fourth Street side edges of Blocks 2–7 and 13, and along Third Street on the Third Street side edge of Blocks 10 and 20	2030
4	City and County of San Francisco as a Successor to SF Redevelopment	Mission Bay North and South Redevelopment Project Areas (303 acres of land between San Francisco Bay and Interstate 280)	Development of a 500-room hotel on Block 1	2021
5	City and County of San Francisco as a Successor to SF Redevelopment	Mission Bay North and South Redevelopment Project Areas (303 acres of land between San Francisco Bay and Interstate 280)	Development of 41 acres of new public open space, including parks along Mission Creek and along San Francisco Bay, plus 8 acres of open space within the UCSF Research Campus	2030
6	City and County of San Francisco as a Successor to SF Redevelopment	Mission Bay North and South Redevelopment Project Areas (303 acres of land between the San Francisco Bay and Interstate 280)	Development of a new 500-student public school, a new public library, and new fire and police stations and other community facilities on Block 14	2016
7	UCSF	UCSF Medical Center at Mission Bay: Phase I	Development of 1.79 million sf, excluding parking, including: <ul style="list-style-type: none"> • 289-bed hospital (621,000 gsf) • outpatient building (213,500 gsf) • 430 surface parking spaces • 626 parking structure spaces 	2014–2015
8	UCSF	UCSF Medical Center at Mission Bay: Future Phase	Development of 793,500 sf, excluding parking; includes 261-bed hospital and between 225 and 925 parking spaces, as well as 500,000 sf of office, biotechnology research, and possibly outpatient clinics with up to 500 parking spaces (Blocks 33/34)	2022–2030
<i>Total UCSF Medical Center at Mission Bay space (south side of 16th Street) within Alternative 2 Mission Bay area</i>			2.58 million sf on 18 acres	

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
9	UCSF	UCSF Research Campus at Mission Bay: Neurosciences Research Building, Block 19A	Development of a 237,000-sf, five-story, neuroscience research building located on Block 19A off the Koret Quad adjacent to Rock Hall on the UCSF Mission Bay campus. Building proposed to house the Department of Neurology, Institute for Neurodegenerative Diseases, and W. M. Keck Foundation Center for Integrative Neuroscience	April 2012
10	UCSF	UCSF Research Campus at Mission Bay: UC Hall Seismic Replacement	Development of the following uses: 315,000 sf of laboratory research and research support space 15,000 sf of instructional facilities 21,000 sf of campus administration and campus community functions 20,000 sf of academic support space 14,000 sf of logistical support space	August 2002
11	UCSF	UCSF Research Campus at Mission Bay: Mission Bay Developmental Biology and Genetics Building, Building 19B and Mission Bay Campus Community Center, Building 21B	Development of the following uses: 385,000 sf of research, instruction, and support space Phase 1 landscaping, parking, and infrastructure improvements New public street, Fourth Street, running north-south through the UCSF Research Campus site	2003
12	UCSF	UCSF Research Campus at Mission Bay: QB3 and Building 21A Parking Garage	Development of the following uses: 153,000 sf of research, instruction, and support space 4,200 off-street parking spaces	July 2005
13	UCSF	UCSF Research Campus at Mission Bay: Block 20 Housing	Development of the following uses: 400,000 sf of residential uses 14,595 sf of retail and community services 6,775 sf of office/logistics support	2005
14	UCSF	UCSF Research Campus at Mission Bay: Block 23B Parking Garage	Development of the following within a nine-level parking garage: 1,180 parking spaces 70 bicycle parking spaces 130 motorcycle parking spaces 6,500 sf of retail or office space within the ground floor of the garage	2007
15	UCSF	UCSF Research Campus at Mission Bay: Block 17C Cancer Research Building	Development of 162,000 sf for wet laboratory research space to expand School of Medicine research programs in neurological surgery, urology, and Cancer Center-related research space for laboratory support, desktop research, office/administrative support, a vivarium, and logistics	December 2007
16	UCSF	UCSF Research Campus at Mission Bay: Cardiovascular Research Building 17A/B	Development of 236,000 sf for a five-story clinical research and basic research facility for the UCSF School of Medicine	2010
17	UCSF	UCSF Research Campus at Mission Bay: Block 25 Faculty Office Building (currently unprogrammed space)	Development of 252,000 sf for a six-story faculty office building associated with the UCSF Medical Center at Mission Bay	2014–2015

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
		<i>Total UCSF Research Campus at Mission Bay space (north side of 16th Street) within Alternative 2 Mission Bay area</i>	<i>2.24 million square feet on 43 acres</i>	
18	SFRPD	Potrero Hill Landscape and Playground Improvements (bounded by 22nd, 23rd, and Wisconsin Streets)	Reconfiguration of Arkansas Street entry to provide disabled access, renovation of tot playground and north softball field and fencing; new site furniture and paving; planting; and fencing around the perimeter of the recreation center	September 2011
19	SFRPD	South Park Renovation	Renovation of the children's play area, site accessibility, and related amenities	Construction to begin in spring 2015
20	SFRPD	McKinley Square Hillside Improvement Project	Improvement by adding native plants, a drinking fountain, connecting paths, lighting, and kiosk	Design is complete
21	SFRPD	Potrero Hill Recreation Center Renovation	Improvement of natural turf playfields and dog park area	Planning to begin in 2015
22	SFRPD	Jackson Playground	Renovation of play area, clubhouse, restrooms, conversion of sports fields to synthetic turf, replacement of irrigation system, improvement of drainage, replacement of fencing/wall, relocation of baseball diamond, expansion of park into adjacent street rights-of-way	2016–2024
23	SFRPD	Esprit Park	Construction of dog play area, repair of irrigation system, installation of table/benches, replacement of surface by tables, upgrade to outdoor athletic course, and lighting and vegetation replacement	2016–2024
24	SF Port	Pier 70 Master Plan (located at the foot of Potrero Hill along San Francisco's Central Waterfront)	Maintenance of 17 acres for ship repair and development of 50 acres of historic shipyard area with: <ul style="list-style-type: none"> • 2,000 residential units • 700,000 sf of new uses within historic buildings • 11 acres of open space along the shoreline (including Crane Cove Park and Slipways Park) and 9 acres of open space within development • 3 million sf of infill development • Infrastructure construction and environmental remediation 	2032

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
25	SF Port	China Basin Seawall Lot 337 & Pier 48 (just south of AT&T Park and immediately adjacent to the emerging Mission Bay neighborhood)	Development of a mixed-use, waterfront community that includes: <ul style="list-style-type: none"> • 11.17 acres of open space (which includes a 6.2-acre waterfront park) • 875 residential units • 244,590 sf of retail • 1,037,400 sf of office • 181,200 sf of exhibition space • 0.33 acre of recreation space • 163 shared parking spaces Revitalization of Historic Pier 48 to host events, shows, and expositions	2027
26	SF Port	Agua Vista Park	Renovation of the 20,000-sf park at Terry Francois Boulevard at 16th Street to connect to Bayfront Park. Improvement with new pathways, seating areas, and interpretation and fishing facility improvements	August 2015
27	SF Planning	1001 Potrero Avenue	Rebuild of San Francisco General Hospital to new requirements, development of a new 419,070-sf hospital building, and reuse of 129,706 sf of Building 5	2012
28	SF Planning	2235 Third Street	Development of 5,339 sf of commercial uses and 196 residential units	2012
29	SF Planning	1301 Indiana Street	Removal of 9,800 sf of commercial uses and development of 71 residential uses	Unknown
30	SF Planning	750 Second Street	Removal of 2,710 sf of commercial uses and development of 14 residential units	2013
31	SF Planning	1455 Third Street	Development of 380,999 sf of commercial uses	2014
32	SF Planning	1600 Owens Street	Development of 219,000 sf of outpatient clinic uses (Kaiser Medical Office Building)	2014
33	SF Planning	555 Mission Rock Street	Development of 150 residential units	2014
34	SF Planning	166 Townsend Street	Removal of 73,625 sf of commercial uses and development of 66 residential units	December 2011
35	SF Planning	1004 Mississippi Street	Development of 28 residential units	October 2016
36	SF Planning	455 Mission Bay Boulevard South	Development of 333,945 sf of commercial uses	2014
37	SF Planning	2298 Third Street	Development of 14,000 sf of commercial uses and 69 residential units	2014
38	SF Planning	345 Brannan Street	Development of 53,030 sf of commercial uses	2014
39	SF Planning	246 Ritch Street	Removal of 4,130 sf of commercial uses and development of 19 residential units	2014
40	SF Planning	616 20th Street	Development of 6,340 sf of commercial uses and 269 residential units	2014

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
41	SF Planning	1717 17th Street	Removal of 13,369 sf of commercial uses and development of 41 residential units	2016
42	SF Planning	690 Fifth Street	Removal of 13,500 sf of office uses and development of 41,000 sf of hotel/visitor uses and 5,000 sf of retail uses	2016
43	SF Planning	1 Turner Terrace	Replacement of 606 units of housing with 1,400–1,700 residential units (1,094 net units) and 30,000 sf of commercial uses	2018
44	SF Planning	1000 16th Street	Development of 26,500 sf of commercial uses and 450 residential units	2018
45	SF Planning	740 Illinois Street	Removal of 8,500 sf of commercial uses and development of 70 residential units	2018
46	SF Planning	1-25 Division Street	Removal of 35,453 sf of commercial uses and development of 100 residential units	October 2016
47	SF Planning	1263 Connecticut Street	Development of 26,500 sf of commercial uses	2013
48	SF Planning	72 Townsend Street	Development of 74 residential units	2013
49	SF Planning	1150 16th Street	Development of 1,155 sf of commercial uses and 15 residential units	October 2016
50	SF Planning	144 King Street	Development of 44,000 sf of hotel/visitor uses	April 2016
51	SF Planning	801 Brannan/1 Henry Adams Street	Removal of Concourse Exhibit Hall (125,000 sf) and development of 560 residential units and 8,000 sf of commercial uses	April 2016
52	SF Planning	603 Seventh Street	Removal of existing uses and development of 4,666 net sf of commercial uses	March 2015
53	SF Planning	85 Bluxome Street	Removal of existing uses (27,646 sf) and development of 33,000 net sf of office uses	October 2015
54	SF Planning	598 Brannan Street	Removal of 38,200 sf of industrial uses and development of 692,568 net sf of office uses	April 2017
55	SF Planning	501 Brannan Street	Removal of parking lot and construction of 10,130 sf of retail uses and 132,095 sf of office uses	November 2016
56	SF Planning	333 Brannan Street (aka 329 Brannan Street)	Removal of 13,740 sf of industrial uses and development of 175,881 sf of office uses and 2,572 sf of retail uses	June 2015
57	SF Planning	482 Bryant Street	Development of 4,857 sf of commercial uses	October 2015
58	SF Planning	901 Tennessee Street	Removal of 9,000 sf of existing warehouse uses and development of 39 residential units	April 2016
59	SF Planning	1000 Fourth Street	Development of 150 residential units	2015
60	SF Planning	1351 Third Street	Development of a 264,000-sf office/commercial space to be used as a police headquarters and fire station	Unknown

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
61	SF Planning	1006 16th Street	Development of 393 residential units	October 2016
62	SF Planning	1200 17th Street	Removal of 105,000 sf of industrial uses and office uses and development of approximately 200 residential units, 144,113 net sf of office uses, and 26,000 net sf of retail uses	October 2016
63	SF Planning	1201–1225 Tennessee Street	Removal of existing commercial uses and development of approximately 300 residential units and 5,000 sf of retail uses (net 139,594 sf of commercial uses)	October 2016
64	SF Planning	1717 17th Street	Removal of commercial buildings and construction of 20 residential units and 4,840 sf of production/distribution/repair (net 18,209 sf of office uses)	Completed 2014
65	SF Planning	1301 16th Street	Removal of 38,600 sf of industrial uses and development of 276 residential units	April 2017
66	SF Planning	131 Missouri Street	Removal of 5,296 sf of industrial uses and development of nine residential units	October 2016
67	SF Planning	1395 22nd Street	Development of 251 residential units and 29,780 sf of production/distribution/repair	April 2017
68	SF Planning	2146 Third Street	Removal of a building and development of seven residential units (12,000 sf)	March 2016
69	SF Planning	2171 Third Street	Removal of 23,654 sf of industrial/office uses and development of 109 residential units (154,509 gsf) and 3,143 sf of retail uses (net 20,511 sf added)	October 2016
70	SF Planning	2230 Third Street	Removal of existing commercial uses and development of 37 residential units and 2,399 sf of commercial uses	April 2017
71	SF Planning	800 Indiana Street	Removal of the existing Opera Warehouse (78,240 sf) and development of 340 residential units	December 2016
72	SF Planning	480 Potrero Avenue	Development of 84 residential units (85,490 sf)	January 2016
73	SF Planning	580 De Haro Street	Removal of existing office uses and six residential units and development of nine residential units (three net units)	January 2017
74	SF Planning	630 Indiana Street	Removal of existing uses and development of 111 residential units (114,700 sf) and 1,900 sf of retail uses	April 2017
75	SF Planning	645 Texas Street	Development of 94 residential units	April 2016
76	SF Planning	650 Illinois Street	Removal of 15,349 sf of existing uses and development of 97 residential units (71,225 sf)	October 2016
77	SF Planning	777 Tennessee Street	Removal of 15,500 sf of light industrial uses and development of 59 residential units	Unknown
78	SF Planning	815 Tennessee Street	Removal of 32,000 sf at 815–825 Tennessee (retaining the brick façade) and development of 88 residential units	October 2016

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
79	SF Planning	851 Tennessee Street	Development of a 2,790-sf new school	Unknown
80	SF Planning	888 Tennessee Street	Removal of 38,520 sf existing uses and development of 110 residential units, 2,155 sf of retail uses, and 10,073 sf of courtyard open space	April 2017
81	SFPUC	Central Bayside System Improvement Project (potential alignments between Channel Pump Station and Southeast Treatment Plant)	Construction of a tunnel to provide conveyance and storage of wastewater flows from the Channel Pump Station. Development of a range of potential green and grey infrastructure improvements	2023
82	SFPUC	Emergency Firefighting Water System (also known as Auxiliary Water Supply System or AWSS) Seismic Upgrades	Seismic upgrade of City's Emergency Firefighting Water Supply System	2034–2046, depending on the alternative chosen
83	SFPUC	Central Subway Sewer Improvements	Sewer improvements (rehabilitation and installation) on Fourth Street from Bryant to King Street	December 2015
84	SFPUC	Wastewater Enterprise Renewal and Replacement Program	Correction of deficiencies in collection system and treatment facilities throughout the City, involving sewer repair and replacement	Ongoing
85	SFPUC	San Francisco Eastside Recycled Water Project	Construction of a pipeline associated with delivery of 2 mgd of recycled water for nonpotable uses on the east side of the City, including Mission Bay. Potential treatment facility sites have been identified at Seawall Lot 337, Pier 70, as well as 3 additional potential sites south of Cesar Chavez Street	December 2021 (project is currently paused)
86	Transbay Joint Powers Authority	Transbay Transit Center/Caltrain Downtown Extension Project	Extension of Caltrain 1.3 miles from Fourth and King Streets to new Transit Center with accommodations for future high-speed rail service	2019; however, on hold because of significant funding gap
<i>Total SFRPD, SF Port, SF Planning, and SFPUC space within Alternative 3 Mission Bay area</i>			<i>Net Total of 6,085,382 sf of commercial (retail and industrial), 14,938 residential units, 4,538,070 sf of medical (hospital and research), 86.23 acres of park/open space/recreation, 22,762,546 sf of office, 500-room hotel, 85,000 sf of hotel/visitor/exhibition, 163 parking spaces, and two public schools/public library/fire and police stations/other community facilities</i>	
Total Space within Alternative 3 Mission Bay Area			Net Total of 6,085,382 sf of commercial (retail and industrial), 14,938 residential units, 9,359,440 sf of medical (hospital and research), 86.23 acres of park/open space/recreation, 22,762,546 sf of office, 500-room hotel, 85,000 sf of hotel/visitor/exhibition, 8,024 parking spaces, and two public schools/public library/fire and police stations/other community facilities	

Table 4-2: Cumulative Projects in the Vicinity of the Potential New SFVAMC Mission Bay Campus

Project No.	Agency Jurisdiction	Project Name	Approved or Proposed Uses	Completion Date
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Note: AWSS = Auxiliary Water Supply System; gsf = gross square feet; mgd = million gallons per day; sf = square feet; SF Planning = San Francisco Planning Department; SF Port = Port of San Francisco; SFPUC = San Francisco Public Utilities Commission;
SF Redevelopment = San Francisco Redevelopment Agency; SFRPD = San Francisco Recreation and Park Department;
UC = University of California; UCSF = University of California, San Francisco
Sources: Reilly, pers. comm., 2011; Wong, pers. comm., 2011; Beyer, pers. comm., 2011; Beaupre, pers. comm., 2011; Olsen, pers. comms., 2011 and 2014; SF Planning, 2014; Pearson, pers. comm., 2014; SF Port, Undated; SFPUC, 2012, 2013, 2014c, and Undated; TA, 2015

4.3 CUMULATIVE IMPACT ANALYSIS

See Table 4-3 for the cumulative impact discussions for the EIS Alternatives. The table also identifies those other cumulative past, present, and future cumulative projects from Tables 4-1 and 4-2 that are relevant to the assessments. Following Table 4-3 is a detailed cumulative impact analysis for resource areas that have the potential for an adverse cumulative impact.

It should be noted that the discussion of Alternative 3 cumulative impacts in Table 4-3 includes only the long-term projects at the potential new SFVAMC Mission Bay Campus. The analysis of impacts of Alternative 3 short-term projects at the existing SFVAMC Fort Miley Campus is the same as Alternative 1 short-term projects in Table 4-3.

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Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
AESTHETICS						
Construction: Views and Visual Character	4, 12, and 14	4 and 12	Minor cumulative impact. Construction activity and the use of construction materials could be required for Alternative 1 or 2 and the identified cumulative projects at the same time. However, dense vegetation exists within the GGNRA and visually screens much of the GGNRA from outside view locations. Similarly, portions of the existing SFVAMC Fort Miley Campus are screened by vegetation on GGNRA lands and/or by existing buildings on the Campus. Because views of GGNRA land and the Campus from any one location are relatively limited, construction activity and the use of construction materials for Alternative 1 or 2 would not be cumulatively visually intrusive, even if construction were to occur concurrently with other cumulative projects. Therefore, this would be a minor cumulative impact.	N/A	1–5, 8, 21–25, 29, 60, 81–82, and 84–86	Minor cumulative impact. The occurrence of construction activity and presence of construction materials associated with Alternative 3 could change views of and from the potential new SFVAMC Mission Bay Campus and could change the visual character of the Mission Bay area. However, it is reasonable to assume that the aesthetic effect that would result from implementing Alternative 3 would not be cumulatively considerable, even though the exact location of a site in Mission Bay has not been identified and no project plans are available. Based on the overall amount of development anticipated to occur in the Mission Bay area over the next two decades, construction sites and construction activities will continue to be part of the visual character of the Mission Bay area. Therefore, this would be a minor cumulative impact.
Construction: Light	12	12	Minor cumulative impact. Because construction activity would occur during daylight hours, lighting of construction areas during construction activities is not anticipated. However, the use of some low-level nighttime security lighting in construction areas would be necessary. This lighting would be limited to facility footprints that are currently lit at night and/or experience light spillage from nearby lighting sources. It is not anticipated that lighting for construction under Alternative 1 or 2 would be visually intrusive, even when considering other projects in the area. Therefore, this would be a minor cumulative impact.	7, 9–17, 18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. Based on the substantial amount of development anticipated to occur in the Mission Bay area in the next three decades, it is reasonable to assume that construction activity for Alternative 3 has the potential to occur at the same time as other construction projects in the Mission Bay area. It is anticipated that construction activity would occur during daylight hours; therefore, lighting of construction areas during construction activities is not anticipated. However, the use of some low-level nighttime security lighting in construction areas may be necessary. It is not anticipated that lighting for construction of Alternative 3 would be visually intrusive, even when considering other projects in the Mission Bay area. Therefore, this would be a minor cumulative impact.

⁴ Ongoing projects are listed as both past and present/future cumulative projects where applicable.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Operation: Views and Visual Character	4	4	Minor cumulative impact. Dense vegetation exists within the GGNRA and visually screens much of the GGNRA from outside view locations. Similarly, portions of the existing SFVAMC Fort Miley Campus are screened by vegetation on GGNRA lands and/or by existing buildings on the Campus. Because views of GGNRA land and the existing Campus from any one location are relatively limited, the new permanent structures associated with this Alternative would not be visually intrusive when combined with cumulative projects in the same viewshed, and the visual character of the area would not change substantially. Therefore, this would be a minor cumulative impact.	N/A	1–5, 8, 21–25, 29, 60, 81–82, and 84–86	Minor cumulative impact. Implementing Alternative 3 could change the visual character of the Mission Bay area, and could change the views of and from the site in the Mission Bay area that may be developed as part of a new SFVAMC Mission Bay Campus. It is not possible to definitively determine the level of cumulative impact that would result from this Alternative because the exact location of the project site and a detailed project design are unknown at this time. Although SFVAMC intends to locate the potential new SFVAMC Mission Bay Campus on federal lands, it must follow San Francisco Planning Code requirements related to zoning, height, and bulk restrictions when preparing the site. However, based on the substantial amount of development anticipated to occur in the Mission Bay area over the next two decades, it is reasonable to assume that the change in visual character that would result from new SFVAMC buildings in the Mission Bay area would not be cumulatively considerable. Therefore, this would be a minor cumulative impact.
Operation: Light and Glare	4	4	Minor cumulative impact. The amount of light and glare at the existing SFVAMC Fort Miley Campus may increase with implementation of Alternative 1 or 2, and it is possible that certain activities for the identified cumulative projects would result in increased lighting levels adjacent to the GGNRA. Cumulative Project 12 could result in additional glare, because it would involve installing solar panels on tops of existing SFVAMC buildings; however, such rooftop installation would limit the amount of glare that would be seen by people on Campus and in the nearby GGNRA and areas of San Francisco. In addition, the amount of new light and glare associated with Alternative 1 or 2 would not be cumulatively substantial. Therefore, this would be a minor cumulative impact.	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. New sources of light and glare would likely result from SFVAMC development under Alternative 3, but it is not possible to definitively determine the level of cumulative impact, because the exact location of the project site and a detailed project design are unknown at this time. Based on the substantial amount of development anticipated to occur in the Mission Bay area over the next three decades, it is reasonable to assume that the light and glare contribution of this Alternative would not be cumulatively considerable. Therefore, this would be a minor cumulative impact.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
AIR QUALITY						
Construction: Criteria Air Pollutants	4 and 10	4, 7, and 9	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”	7, 17–18, 20–21, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 20–21, 26, 35, 41–46, 49–63, and 65–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternative 3).”
Construction: Localized TAC and PM Emissions	1, 4, and 11–15	4 and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”	7, 17–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 20–21, 26, 35, 41–46, 49–63, and 65–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternative 3).”
Construction: Odors	4	4	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternative 3).”
Operation: Criteria Air Pollutants	2, 4–5, 8, 10, and 12	4, 7, 9, and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”
Operation: Localized CO Emissions	1, 2, 4–5, 8, 10–15, and 19	4, 6–7, 9, 12, and 16–19	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”
Operation: Localized TAC and PM Emissions	1, 4, and 11–15	4 and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”	7, 17–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 20–21, 26, 35, 41–46, 49–63, and 65–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”
Operation: Odors	1, 3–4, and 10–12	4, 9, and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternatives 1 and 2).”	7, 9–18, 27–28, and 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Air Quality (Alternative 3).”

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
COMMUNITY SERVICES						
Construction: Fire Protection Services	4 and 10	4 and 7	Minor cumulative impact. Construction activities for Alternative 1 or 2 projects, in combination with the identified cumulative projects, could result in an incremental increase in demand for fire services. However, because of the location and scope of identified projects, any increase in demand for fire protection services would be minimal. Under Alternative 1 or 2, construction-related impacts including street closures or temporary obstruction would be subject to National Fire Protection Association emergency access standards, requirements, and review (with consideration of the San Francisco Fire Code), which would further reduce construction-related effects on fire access and response times. In addition, all identified cumulative projects would be required to comply with applicable fire and building codes. It is assumed that all cumulative projects would be designed and constructed in compliance with all applicable building and fire codes, and that fire system capacity would be analyzed as part of the design process of any new buildings, building upgrades, or site utility improvements. Therefore, cumulative impacts related to fire protection services during the construction phase would be minor.	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. The level of development for Alternative 3 projects, together with the projects listed in Table 4-2 has the potential to substantially affect demand for fire protection services and fire and EMS access and response times, especially if multiple projects were constructed close to one another at the same time. It is assumed that all cumulative projects would be designed and constructed in compliance with all applicable building and fire codes, and that fire system capacity would be analyzed as part of the design process of any new buildings, building upgrades, or site utility improvements. As a result, cumulative fire protection impacts would be minor, but would require further evaluation at the time that a specific location has been selected for a potential new SFVAMC Mission Bay Campus.
Construction: Fire Hazards	4	4, 7, and 16–17	Minor cumulative impact. Construction activities for Alternative 1 or 2 projects, in combination with the identified cumulative projects, which are located adjacent to or near a wildland urban interface area, could result in an incremental increase in the risk of fire. Under Alternative 1 or 2, certain construction equipment, materials, and activities, such as welding may increase fire risk at the existing SFVAMC Fort Miley Campus. To minimize fire risk, the construction contractor would be required to prepare a fire safety plan in accordance with VA Specification Section 010000, “General Requirements,” and 29 Code of Federal Regulations 1926, and conduct safety briefings in accordance with OSHA requirements. In addition, all identified cumulative projects would be required to comply with applicable fire safety	N/A	N/A	Minor cumulative impact. The Mission Bay area is designated as an urbanized area and, therefore, is not considered susceptible to wildland fires. Because the Mission Bay area is not located at a wildland urban interface area or adjacent to forested land, no cumulative impact related to fire hazards would occur during construction.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			requirements. Therefore, cumulative impacts related to fire hazards during the construction phase would be minor.			
Construction: Law Enforcement Services	4 and 10	4 and 9	Minor cumulative impact. Construction of Alternative 1 or 2 projects, in conjunction with the identified cumulative projects would not place undue demand on any one police provider, given the multiple law enforcement jurisdictions (SFPD, NPS, and VA) that are represented by the identified projects. The existing SFVAMC Fort Miley Campus is under exclusive federal jurisdiction and police protection service is provided by the VA Police force. The identified projects that would occur within NPS lands are under the jurisdiction of two NPS law enforcement divisions the U.S. Park Police and the Law Enforcement Rangers. ⁵ The remaining three projects would be under the jurisdiction of the local SFPD. Therefore, any increase in demand for police protection services at the Campus would be accommodated by the VA Police force and would not affect the NPS law enforcement divisions or SFPD. Because any increase in demand would be absorbed across three separate police agencies (VA Police, NPS law enforcement, and SFPD), cumulative impacts related to police protection services during the construction phase would be minor.	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. Long-term development under Alternative 3 would be under the jurisdiction of VA Police. ⁶ It is anticipated that VA Police would be responsible for providing law enforcement and security services to the potential new SFVAMC Mission Bay Campus during construction of Alternative 3 long-term projects. Because the 86 cumulative projects listed in Table 4-2 are under the jurisdiction of the local SFPD, a minor cumulative construction-related police protection impact would occur.
Construction: Parks and Recreation	2–5, 8, and 10	4, 7, 9, and 16–19	Minor cumulative impact. The short-term construction impacts that would result from implementing Alternative 1 or 2 were considered together with the effects of identified cumulative projects. Four of the cumulative projects would occur on NPS lands near the existing SFVAMC Fort Miley Campus. These projects mostly involve enhancement and restoration efforts. Adverse impacts of construction activities under Alternative 1 or 2 would involve primarily noise and potential temporary detours of Fort Miley Campus access roads. These impacts are anticipated to have little or no	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. The impact of constructing Alternative 3 long-term projects on recreation was considered together with the effects of the identified cumulative projects. The cumulative construction impact of Alternative 3 on recreation is anticipated to be minor; however, without knowing where construction under Alternative 3 would occur, it is not possible to come to a definitive conclusion. A more detailed analysis would be required once a location has been selected.

⁵ The GGNRA is served by independent law enforcement divisions within NPS—U.S. Park Police and Law Enforcement Rangers. Patrol operations cover all GGNRA lands (GGNRA, 2011:282).

⁶ Although property owned by VA is considered federal property and outside the jurisdiction of SFPD, SFPD may provide backup support in the event of an emergency.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			effect on park accessibility and usage. Cumulative impacts related to recreation would be minor during construction.			
Operation: Fire Protection Services	1, 2, 4-5, and 8-9	4, 7, 9, and 18-19	Minor cumulative impact. Implementing Alternative 1 or 2 in combination with the identified cumulative projects could result in an incremental increase in demand for fire services. Implementing Alternative 1 or 2 could result in an incremental increase in demand for fire services due to increases in daily population at the existing SFVAMC Fort Miley Campus. However, San Francisco Fire Department personnel have indicated that Alternative 1 or 2 would not have a substantial effect on their services. The existing Campus is currently served by Station 34, and it is anticipated that some of the other cumulative projects would also be served by Fire Station 34. However, related projects are anticipated to generate a low net total of 88 residential. Therefore, implementing Alternative 1 or 2 in combination with identified cumulative projects is not anticipated to create a demand for fire protection services beyond the San Francisco Fire Department’s ability to maintain acceptable service ratios, response times, or other performance objectives. Furthermore, these services are subject to an annual budgeting process during which Citywide priorities are established and service levels are monitored, allowing for adjustments where needed. In addition, there is sufficient capacity in the existing SFVAMC Fort Miley Campus’s existing fire flow system to meet Fire Code requirements; however, the SFVAMC LRDP recommends conducting a more thorough analysis of system capacity as a part of the design of any new buildings, building upgrades, or site utility improvements. With the SFVAMC Fort Miley Campus under Alternative 1 or 2 and the identified cumulative projects adhering to all applicable national and local fire regulations, operational cumulative impacts related to fire protection services would be minor.	7, 9-18, 27-28, 30-34, 36-40, 47-48, and 64	1-8, 17, 19-26, 29, 35, 41-46, 49-63, and 65-86	Minor cumulative impact. Without knowing where Alternative 3 long-term development would occur, it is not possible to determine which cumulative projects listed in Table 4-2 should be evaluated in conjunction with Alternative 3 for cumulative fire protection impacts. The square footage that would be developed in the Mission Bay area under Alternative 3 (170,000 square feet), together with the 86 cumulative projects listed in Table 4-2, has the potential to substantially affect demand for fire protection services, fire and EMS response times, emergency access, and fire flow as compared to the anticipated demand. However, new development will be required to comply with requirements for fire protection and impacts would be anticipated to be minor. However, a specific location and design for a new SFVAMC campus in the Mission Bay area is currently unknown, further quantitative analysis would be required once a specific location and site plan for a new SFVAMC campus in the Mission Bay area is identified.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Operation: Fire Hazards	N/A	18–19	Minor cumulative impact. Implementing Alternative 1 or 2 in conjunction with the identified cumulative projects, which are located adjacent or near the wildland urban interface area, would result in an incremental increase in the risk of fire. Implementing Mitigation Measure GHG-1 identified in Section 3.7, “Greenhouse Gas Emissions and Climate Change,” would reduce the potentially adverse wildfire risk of Alternative 1 or 2. Alternative 1 or 2 would not make a cumulatively considerable contribution to a cumulative construction impact. Therefore, cumulative impacts related to fire hazards would be minor.	N/A	N/A	Minor cumulative impact. None of the projects listed in Table 4-2 are located at a wildland urban interface area or adjacent to forested land. Therefore, no cumulative impact related to fire hazards would occur during the operational phase.
Operation: Law Enforcement Services	1–2, 4–5, and 8–9	4, 7, and 9	Minor cumulative impact. Implementing Alternative 1 or 2, in conjunction with the identified cumulative projects, would not place undue demand on any one police provider, for the same reasons as described above. Therefore, cumulative impacts related to police protection services during the operational phase would be minor.	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. Long-term development under Alternative 3 would be under the jurisdiction of VA Police. It is anticipated that VA Police would be responsible for providing law enforcement and security services at the potential new SFVAMC Mission Bay Campus during the operational phase of Alternative 3 long-term projects. Because the cumulative projects listed in Table 4-2 are under the jurisdiction of the local SFPD or University of California Police, a minor cumulative operational police protection impact would occur.
Operation: Parks and Recreation	1–4	4	Beneficial cumulative impact. Implementing Alternative 1 or 2 would result in an increase in personnel, patients, and visitors at the SFVAMC Fort Miley Campus. This increase would occur gradually over a 20-year period. Cumulative projects listed in Table 4-1 are estimated to introduce a net total of 88 residential units. Introducing 88 residential units is not anticipated to substantially affect Citywide park demand. Four of the 19 projects listed in Table 4-1 involve park improvements within the NPS system. In particular, Cumulative Project 4 (GGNRA General Management Plan) aims to better connect sites to their surroundings, including Lands End and the existing SFVAMC Fort Miley Campus. The GGNRA General Management Plan, along with the other NPS projects included in Table 4-1, is anticipated to beneficially affect park accessibility and overall enjoyment of the park system. Thus, there would be a beneficial	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 19–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. Implementing Alternative 3 would introduce a new daily population to an as-yet-undetermined site in the Mission Bay area. Medical personnel and, to a lesser extent, patients and visitors associated with Alternative 3 projects might use surrounding parks, open space, and recreational facilities. Implementing the cumulative projects listed in Table 4-2 is estimated to introduce a net total of 14,938 residential units. Introducing 14,938 residential units has the potential to substantially affect demand for park and recreational resources in the Mission Bay neighborhood. However, new development will be required to comply with requirements for recreation and impacts would be anticipated to be minor. Further evaluation would be required once a specific site for a potential new SFVAMC Mission Bay Campus is identified

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
cumulative impact related to recreation during operation.						
CULTURAL RESOURCES						
Construction: Archaeological Resources and Human Remains	4 and 11	4	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Cultural Resources (Alternatives 1 and 2).”	4 and 11	4	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Cultural Resources (Alternative 3).”
Construction: Historic Properties	1–4 and 11–15	4 and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Cultural Resources (Alternatives 1 and 2).”	1–4 and 11–15	4 and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Cultural Resources (Alternative 3).”
Operation: Archaeological Resources	N/A	N/A	No cumulative impact. None of the identified cumulative projects have the potential to disturb archaeological sites during the operational phase, because it is assumed that no ground-disturbing activities would occur after construction. Therefore, no operational cumulative impacts on archaeological resources would occur.	N/A	N/A	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Cultural Resources (Alternative 3).”
Operation: Historic Resources	N/A	N/A	No cumulative impact. None of the identified cumulative projects would be anticipated to alter historic structures during the operational phase, because it is assumed that no potential exists for alterations to historic structures after completion of the construction phase. Therefore, no operational cumulative impacts on historic resources would occur.	N/A	N/A	Minor cumulative impact.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	

FLOODPLAINS, WETLANDS, AND COASTAL MANAGEMENT

Short-Term Project Impacts

Construction: Wetlands Alteration	N/A	N/A	No cumulative impact. Because there are no wetlands or waters of the United States on or near the existing SFVAMC Fort Miley Campus that could be affected by implementing Alternative 1 or 2 short-term projects, no construction-related cumulative wetlands alteration impact would occur.	1-6, 7-26, and 28-86	1-26 and 28-86	<p>Minor cumulative impact. The identified cumulative projects in the Mission Bay area watershed lands have the potential to affect wetlands indirectly by causing erosion and sedimentation, if the projects are located adjacent to or down-gradient from wetlands, or directly by causing the loss of wetlands if located within wetland areas. The proponents for the identified cumulative projects, as well as SFVAMC when implementing Alternative 3 long-term projects, would be required to comply with the federal CWA, the NPDES, the San Francisco Construction site Runoff Control Ordinance, and Article 4.1 of the San Francisco Public Works Code, which specifies implementation of a SWPPP with BMPs for construction activities. In addition, SFVAMC would be required to comply with erosion and sediment controls outlined in VA Specification Section 015719 when implementing Alternative 3. These requirements include such measures as setting work-area limits, protecting the landscape, reducing exposure of unprotected soils, protecting disturbed areas, installing erosion and sediment control devices, implementing hazardous-material spill prevention measures, managing spoil areas, and following good-housekeeping procedures.</p> <p>This would result in a minor cumulative impact related to indirect alteration of wetlands as a result of erosion or sedimentation from construction activities. However, because a final location has not been determined for Alternative 3, an adverse cumulative impact could occur if the potential new SFVAMC Mission Bay Campus were located where a loss of jurisdictional wetlands would result.</p> <p>Should wetlands appear to be present on a proposed site for Alternative 3, a qualified wetland biologist would conduct a wetlands assessment as part of a future project-level NEPA</p>
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Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Construction: Degradation of Coastal Resources	1-2, 4-5, 8, 10-15, and 19	4, 6-7, 9, 12, and 16-19	<p>Minor cumulative impact. Implementation of the identified cumulative projects within the GGNRA and outer Richmond District watershed lands in conjunction with Alternative 1 or 2 has the potential to affect the water quality of coastal resources by causing erosion and sedimentation, including as a result of dewatering discharges during construction. The proponents of the identified cumulative projects, as well as SFVAMC when implementing Alternative 1, must comply with the federal CWA, the NPDES, the San Francisco Construction site Runoff Control Ordinance, and Article 4.1 of the San Francisco Public Works Code, which specifies implementation of a SWPPP with BMPs for construction activities. In addition, SFVAMC would be required to comply with erosion and sediment controls outlined in VA Specification Section 015719 when implementing Alternative 1 or 2. All these aforementioned regulations are designed to protect regional water quality and incorporate measures to protect beneficial uses of water bodies within the relevant watershed lands and surrounding drainages. Therefore, construction-related cumulative impacts on coastal resources would be minor.</p>	1-26 and 28-86	1-26 and 28-86	<p>review, in compliance with Executive Order 11990, to determine the quantity and type of wetlands that would be avoided or mitigated. A qualified biologist would develop a conceptual wetland mitigation plan. The plan would include appropriate wetland replacement ratios as determined by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and San Francisco Bay Conservation and Development Commission. Other cumulative projects would require compliance with Executive Order 11990 and similar wetlands mitigation measures.</p> <p>Thus, with implementation of the above regulatory requirements, Alternative 3 would result in a minor cumulative impact related to wetlands.</p> <p>Minor cumulative impact. The proponents for the identified cumulative projects in the Mission Bay area watershed lands would be required to comply with the federal CWA, the NPDES, the San Francisco Construction site Runoff Control Ordinance, and Article 4.1 of the San Francisco Public Works Code, which specifies implementation of a SWPPP with BMPs for construction activities. In addition, SFVAMC would be required to comply with erosion and sediment controls outlined in VA Specification Section 015719 when implementing Alternative 3. Implementing all these aforementioned regulatory requirements would result in a minor cumulative impact related to degradation of coastal resources as a result of construction activities.</p>

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Operation: Flooding	N/A	N/A	No cumulative impact. The existing SFVAMC Fort Miley Campus is not situated within a designated floodplain. Therefore, no cumulative flooding impact would result from operational location within a floodplain.	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. Proponents for the identified cumulative projects located within a floodplain would be required to comply with the San Francisco Floodplain Management Ordinance. Ordinance requirements include locating the first floor of structures above the floodplain or flood proofing the structures. Compliance with the Floodplain Management Ordinance would be required. Therefore, no cumulative flooding impact would result from operational location within a floodplain.
Operation: Degradation of Wetlands and Coastal Resources	N/A	N/A	Minor cumulative impact. Long-term operations of identified cumulative projects would cause a further reduction in permeable acreage and changes in the intensity and types of land use. Thus, these projects have some potential to exceed the capacity of existing and planned sewers, degrade the quality of stormwater discharged to those sewers, and contribute to the frequency or severity of CSO events that discharge to the Pacific Ocean. However, individual cumulative projects disturbing 5,000 square feet or more of the ground surface would be required to comply with the <i>San Francisco Stormwater Design Guidelines</i> . Because a federal facility would be involved, SFVAMC would be required to comply with Section 438 of the EISA when implementing Alternative 1 or 2. Under the EISA, LID techniques (e.g., bioretention areas, permeable pavements, cisterns/recycling, and green roofs) would be implemented to mimic the predevelopment stormwater runoff conditions by using site design techniques that store, infiltrate, evaporate, and detain runoff. In addition, cumulative projects would be required to comply with Article 4.2 of the San Francisco Public Works Code, which requires that the project proponent submit a stormwater control plan that meets guidelines established by SFPUC. These planning efforts and policies are all designed to protect regional water quality and incorporate measures to protect beneficial uses of water bodies based on overall consideration of past, present, and future conditions in the region. With incorporation of these efforts and policies, the	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. Stormwater from the Mission Bay area, part of the Bayside Drainage, is collected in the combined sewer system and treated at the City’s Southeast Water Pollution Control Plant, pursuant to the effluent discharge limitations set by the NPDES permit, before being discharged to San Francisco Bay. If stormwater runoff from the cumulative projects would flow into a separate stormwater system, runoff would have to comply with SFPUC’s Stormwater Design Guidelines, which would incorporate LID or other practices to protect water quality. Implementing SFPUC’s <i>San Francisco Sewer System Master Plan</i> and <i>Sewer System Improvement Plan</i> would accommodate the need for additional sewer/stormwater system capacity for planned future development through 2027 by implementing capital improvements. Identified cumulative projects would likely be required to provide on-site treatment and reduce peak runoff from storm events using LID features. Such features would provide improved ground/soil absorption of runoff and control erosion, improve stormwater runoff quality, and minimize the impact of stormwater flows. Proponents for the identified cumulative projects would be required to comply with the <i>San Francisco Stormwater Design Guidelines</i> and Article 4.2 of the San Francisco Public Works Code. As a result of these planning efforts and policies, operational cumulative impacts, wetlands alteration, impacts on coastal resources from increased frequency or

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			operational cumulative impact on coastal resources from increased frequency or severity of CSO events and/or downstream flooding, or water quality degradation caused by changes in land use or increases of impervious surfaces, would be minor.			severity of CSO events and/or downstream flooding, or water quality degradation caused by changes in land use or increases in impervious surfaces would be minor.

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

Construction: Geology and Soils	4	4	Minor cumulative impact. Construction of Alternative 1 or 2 projects would not contribute to a cumulative impact related to geology and soils while considering the construction of Cumulative Project 4, because both projects would seismically retrofit or construct facilities consistent with seismic standards. Therefore, this would be a minor cumulative impact.	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. The alteration of topography is a site-specific impact and would be considered on a cumulative level only if two or more projects would overlap in a site area. The potential new SFVAMC Mission Bay Campus considered under Alternative 3 would not overlap in site area with any projects listed in Table 4-2. ⁷ Therefore, Alternative 3 would not result in any cumulative impact related to the alteration of topography. An NPDES general permit for stormwater discharges associated with construction activities (Construction General Permit; State Water Resources Control Board Order No. 99-08-DWQ) would be required for the potential new Campus and all cumulative projects. In addition, the construction of Alternative 3 and cumulative projects that would disturb 1 acre or more and drain to the separate sewer system would require compliance with the Construction General Permit and preparation and implementation of a SWPPP that meets Construction General Permit conditions. The construction of Alternative 3 and cumulative projects that would disturb 5,000 square feet or more would require application for a Construction Site Runoff Control Permit and submittal of an erosion and sediment control plan (ESCP) or copy of the SWPPP. The Alternative 3 long-term projects may contribute incrementally to cumulative erosion impacts; however, adherence to standard construction practices and requirements would limit the magnitude of cumulative
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⁷ City and County of San Francisco as Successor to SF Redevelopment Projects 1–6, UCSF Projects 7–8 and 17, SFRPD Projects 18 and 20–21, SF Port Projects 26–28, SF Planning Projects 30–80, SFPUC Projects 81–85, and Transbay Joint Powers Authority Project 86.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Construction: Paleontological Resources	1 and 3	N/A	<p>Minor cumulative impact. The identified cumulative projects would entail ground-disturbing activities. Fossil discoveries resulting from excavation and earthmoving activities for development are occurring with increasing frequency throughout the state. The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Unique, scientifically important fossil discoveries are relatively rare, and the likelihood of encountering them is based on the type of specific geologic rock formations found underground. These geologic formations vary from location to location.</p> <p>A records search of the University of California Museum of Paleontology’s Paleontology Collections database in Berkeley did not identify any previously recorded fossil localities within or immediately adjacent to the existing SFVAMC Fort Miley Campus. Furthermore, the geologic formations that are present underneath the Campus (i.e., artificial fill, dune sand, and the Franciscan Assemblage) either are too young to contain fossils or would not contain unique vertebrate fossils because of the mechanism by which the formation was created. However, the identified cumulative projects would entail ground-disturbing activities that could occur in paleontologically sensitive geologic formations. Thus, the identified cumulative projects could themselves result in adverse impacts on paleontological resources. However, because Alternative 1 or 2 would not result in adverse impacts on unique vertebrate fossils, implementing Alternative 1 or 2 would not result in a cumulatively considerable incremental contribution to an adverse cumulative impact. Therefore, this would be a minor cumulative impact.</p>	1–26 and 28–86	1–26 and 28–86	<p>impacts from these projects and other cumulative projects. This would be a minor cumulative impact.</p> <p>Minor cumulative impact. Construction of the identified cumulative projects would entail varying amounts of ground-disturbing activities. Fossil discoveries resulting from excavation and earthmoving activities for development are occurring with increasing frequency throughout the state. The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Unique, scientifically important fossil discoveries are relatively rare, and the likelihood of encountering them is site-specific and is based on the type of specific geologic rock formations found underground. These geologic formations vary from location to location.</p> <p>A records search of the University of California Museum of Paleontology’s Paleontology Collections database in Berkeley did not identify any previously recorded fossil localities in the Mission Bay area. Furthermore, the geologic formations that are present underneath the Mission Bay area of Alternative 3 (Holocene alluvium, artificial fill, dune sand, and the Franciscan Assemblage) either are too young to contain fossils or would not contain unique vertebrate fossils because of the mechanism by which the formation was created.</p> <p>When construction activities encounter unique, scientifically important fossils, the subsequent opportunities for data collection and study generally provide a benefit to the scientific community. Because of the site-specific nature of unique paleontological resources; the low probability that any project would encounter unique, scientifically important fossils; and the benefits that would occur from recovery and further study of those fossils if encountered, development of the Mission Bay area under Alternative 3 would not result</p>

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
						in a cumulatively considerable incremental contribution to an adverse cumulative impact. Therefore, this would be a minor cumulative impact.
Operation: Geology and Soils	3-4	4	Minor cumulative impact. Potential effects on geologic and soil conditions are typically considered site specific. Therefore, the geographic context for the analysis of potential cumulative geology and soils impacts under Alternative 1 or 2 consists of the SFVAMC Fort Miley Campus and the immediately adjacent properties. The seismic retrofitting of several existing buildings in combination with the preservation and enhancement of historic structures would result in a beneficial cumulative impact related to the operation of the sites. Operational impacts related to seismically induced ground shaking and failure, landslide, or slope failure are specific to the existing SFVAMC Fort Miley Campus or the GGNRA site (Cumulative Project 4). Consequently, no cumulative operational cumulative impact would result from Alternative 1 or 2 and the impact would be minor.	1-26 and 28-86	1-26 and 28-86	Minor cumulative impact. All new VA buildings would be structurally designed and constructed in compliance with VA Seismic Design Requirements H-18-8 and the International Building Code. A geotechnical report for new structures would be prepared before construction and would include recommendations to protect against seismic impacts. All new structures would be designed and built to the recommended seismic specifications for the site-specific conditions of the potential new SFVAMC Mission Bay Campus. Further, all adjacent cumulative projects would be required to conduct a detailed site-specific assessment of geologic hazards in areas delineated with seismic hazards, landslides, expansive or corrosive soils, and liquefaction, as required by the Community Safety Element of the <i>San Francisco General Plan</i> . Filled land and geologic hazards such as landslides and shoreline erosion are addressed in the Environmental Protection Element of the <i>San Francisco General Plan</i> . In addition, all cumulative projects would be required to comply with the San Francisco Building Code (Municipal Code Title 17, Chapter 17.04), which consists of the 2006 International Building Code. Although new facilities and other projects would be constructed in eastern San Francisco in the future, the increase in risk to people or property from seismic events would be minimal because new development would be designed and constructed to site-specific geotechnical standards and other established San Francisco standards, and policies would be implemented to minimize potential impacts. Therefore, this would be a minor cumulative impact.
Operation: Paleontological Resources	N/A	N/A	No cumulative impact. Because operation of cumulative projects would not result in ground-disturbing activities, no cumulative impact on paleontological resources is anticipated to occur.	1-26 and 28-86	1-26 and 28-86	Minor cumulative impact. Because no ground-disturbing activities are anticipated after construction, no cumulative impact on paleontological resources would occur during the operational phase of Alternative 3.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE						
Construction: Greenhouse Gas Emissions	4 and 10	4 and 7	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Greenhouse Gas Emissions and Climate Change (Alternatives 1 and 2).”	1–26 and 28–86	1–26 and 28–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Greenhouse Gas Emissions and Climate Change (Alternative 3).”
Operation: Greenhouse Gas Emissions	1–2, 4–5, 8, 10–12, and 14	4, 7, 9, and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Greenhouse Gas Emissions and Climate Change (Alternatives 1 and 2).”	1–26 and 28–86	1–26 and 28–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Greenhouse Gas Emissions and Climate Change (Alternative 3).”
Impact of Climate Change: Sea Level Rise, Wildfire Threat, and Extreme Heat Events	1–4, 11–15, and 19	4, 7, 12, 16, and 19	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Greenhouse Gas Emissions and Climate Change (Alternatives 1 and 2).”	7–18, 29, 31–32, 34, 37, and 39	1–7, 17, 29, 49, and 86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Greenhouse Gas Emissions and Climate Change (Alternative 3).”
HYDROLOGY AND WATER QUALITY						
Construction: Water Quality Degradation	1–2, 4, 8, 10–13, 15, and 19	4, 9, 12, and 16–19	Minor cumulative impact. Construction of Alternative 1 or 2 projects in conjunction with the identified cumulative projects on the nearby GGNRA and outer Richmond District watershed lands could affect regional water quality by causing erosion and sedimentation or from dewatering discharges. Proponents for the identified projects, as well as SFVAMC in implementing Alternative 1 or 2, would be required to comply with the federal Clean Water Act, the National Pollutant Discharge Elimination System (NPDES), and Article 4.1 of the San Francisco Public Works Code, which specifies implementation of a storm water pollution prevention plan (SWPPP) with best management practices (BMPs) for construction activities. In addition, SFVAMC would be required to comply with erosion and sediment controls outlined in VA Specification Section 015719 when implementing Alternative 1 or 2. As described in more detail under San Francisco Public Works Code, Article 4.2,	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 24–26, 29, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. Construction of the identified cumulative projects in conjunction with Alternative 3 long-term projects within the Bayside Drainage has the potential to affect regional water quality by causing erosion and sedimentation or resulting in dewatering discharges. Proponents for the identified cumulative projects, as well as SFVAMC when implementing Alternative 3 long-term projects, would be required to comply with the federal Clean Water Act, the NPDES, the San Francisco Construction site Runoff Control Ordinance, and Article 4.1 of the San Francisco Public Works Code, which specifies implementation of a SWPPP with BMPs for construction activities. Using erosion and sediment-control BMPs specified construction techniques and postconstruction stormwater BMPs would reduce the potential for runoff and the release, mobilization, and exposure of pollutants from the project sites. In addition, SFVAMC would be required

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			<p>projects disturbing more than 5,000 square feet are subject to the City’s Construction Site Runoff Control Ordinance and must submit a Construction Site Runoff Control Permit application and an ESCP or copy of the SWPPP to the SFPUC for review. These regulations are designed to protect regional water quality and incorporate measures to protect beneficial uses of water bodies within the relevant watershed lands and surrounding drainages. Therefore, construction-related cumulative impacts on water quality would be minor.</p>			<p>to comply with erosion and sediment controls outlined in VA Specification Section 015719 when implementing Alternative 3 long-term projects. These regulations are designed to protect regional water quality and incorporate measures to protect beneficial uses of water bodies within the Bayside Drainage. Therefore, construction-related cumulative impacts related to water quality would be minor.</p>
Construction: Depletion of Groundwater Resources	1–2, 4, 8, 10–13, 15, and 19	4, 9, 12, and 16–19	<p>Minor cumulative impact. With respect to depletion of groundwater supplies or interference with recharge, the groundwater basins underlying the SFVAMC Fort Miley Campus are not a substantial source of water supply for San Francisco or VA. Groundwater recharge in San Francisco results from infiltration of rainfall, landscape irrigation, and leakage of water and sewer pipes. Recharge caused by leaky municipal water and sewer pipes accounted for approximately half of the total recharge of groundwater in San Francisco. Construction of Alternative 1 or 2 projects in conjunction with the identified projects would not deplete groundwater supplies and cause a net deficit in aquifer volume or substantial interference with recharge. In fact, cumulative development projects in San Francisco may positively contribute to recharge by implementing Low Impact Development (LID) measures that would increase infiltration and reduce runoff to the combined sewer. Dewatering activities for the construction of multiple projects within a groundwater basin could temporarily lower the water table; however, this effect would be short term. Thus, construction of Alternative 1 or 2 projects in conjunction with the identified cumulative projects would have a minor cumulative impact on groundwater supplies and recharge.</p>	7, 9–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 24–26, 29, 35, 41–46, 49–63, and 65–86	<p>Minor cumulative impact. Multiple dewatering projects within a groundwater basin could reduce a water table temporarily; however, this effect would be short term. In addition, the increase in impervious surface that would result from Alternative 3 long-term projects, when considered with the identified cumulative projects, would result in a minor cumulative impact on infiltration characteristics because much of the Mission Bay area is already covered by impervious surfaces. In fact, cumulative projects in San Francisco may positively contribute to recharge by implementing LID measures that would increase infiltration and reduce runoff to the combined sewer. Groundwater would not be used as a source of drinking water or consumptive water supply during construction. Thus, there would be a minor cumulative impact on groundwater supply and recharge.</p>
Operation: Water Quality Degradation	1–2, 4, 8, 10–13, 15, and 19	4, 9, 12, and 16–19	<p>Minor cumulative impact. Long-term operations of identified cumulative projects could exceed the capacity of the existing and planned sewer systems and degrade the</p>	7, 9–18, 27–28, 30–34, 36–40, 47–	1–8, 17, 24–26, 29, 35, 41–46, 49–63, and 65–	<p>Minor cumulative impact. Long-term operations of the identified cumulative projects in the Mission Bay area watershed lands would further increase impervious surfaces</p>

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
and Increase in Combined Sewer Overflow Events		<p>quality of stormwater discharged to those sewer systems because the cumulative projects would further increase impervious acreage and cause changes in the intensity and types of land use. However, the San Francisco Stormwater Design Guidelines require new development and redevelopment disturbing 5,000 square feet or more of the ground surface to manage stormwater on-site. In combined sewer areas under SFPUC jurisdiction, projects must reduce the flow rate and volume of stormwater going into the combined system by achieving Leadership in Energy and Environmental Design (LEED®) Sustainable Sites Credit 6.1, “Stormwater Design: Quantity Control.” LEED® Sustainable Sites Credit 6.1 states that for sites where the existing imperviousness is greater than 50 percent, the project must “implement a stormwater management plan that results in a 25 percent decrease in the volume of stormwater runoff from the two-year 24-hour design storm.”</p> <p>As a federal facility, SFVAMC is not required to comply with the San Francisco Stormwater Design Guidelines for implementation of Alternative 1 or 2. It must comply with Section 438 of the Energy Independence and Security Act (EISA), however, because construction at the federal SFVAMC Fort Miley Campus would have a footprint greater than 5,000 square feet. LID site design techniques (e.g., bioretention areas, permeable pavements, cisterns/recycling, and green roofs) must be implemented to store, infiltrate, evaporate, and detain runoff, and thus to mimic predevelopment stormwater runoff conditions. Cumulative projects under the City’s jurisdiction would be required to comply with Article 4.2 of the San Francisco Public Works Code, which requires that the project proponent submit a stormwater control plan that meets SFPUC guidelines.</p> <p>These planning efforts and policies are all designed to protect regional water quality and incorporate requirements for on-site management of stormwater and implementation</p>	48, and 64	86	<p>and would cause changes in intensity and types of land use. Therefore, these projects have the potential to exceed the capacity of existing and planned sewers and degrade the quality of stormwater discharged to those sewers. The precise location of the potential new SFVAMC Mission Bay Campus under Alternative 3 is unknown at this time. However, stormwater from the Mission Bay area is part of the Bayside Drainage and is collected in the combined sewer system and treated at the City’s Southeast Water Pollution Control Plant, pursuant to the effluent discharge limitations set by the NPDES permit, before being discharged to San Francisco Bay. If stormwater runoff from the potential new SFVAMC Mission Bay Campus would flow into a separate stormwater system, runoff would have to comply with the San Francisco Stormwater Design Guidelines, which would incorporate LID or other practices to protect water quality. In addition, cumulative projects would be required to comply with the San Francisco Stormwater Design Guidelines and Article 4.2 of the San Francisco Public Works Code. As a federal facility, SFVAMC would not be required to comply with the San Francisco Stormwater Guidelines, but would be required to comply with Section 438 of the EISA. Incorporating LID or other techniques required under the EISA would also serve to protect water quality during project operation. Sustainable stormwater design (e.g., green roofs, vegetated swales, storm water detention) would provide on-site stormwater treatment before off-site discharge.</p> <p>These planning efforts and policies are all designed to protect regional water quality and incorporate measures to protect beneficial uses of water bodies based on overall consideration of past, present, and future conditions within the region. With incorporation of these efforts and policies, operational cumulative impacts on the frequency or severity of CSO combined sewer overflow events and/or downstream flooding or water quality degradation caused by changes in land use or increases of impervious surfaces</p>	

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			of stormwater management plans to reduce the volume of stormwater runoff reaching the combined sewer system. With incorporation of these efforts and policies, the operational cumulative impact on the frequency or severity of CSO combined sewer overflow events and/or downstream flooding, or water quality degradation caused by changes in land use or increases of impervious surfaces, would be minor.			would be minor.
LAND USE						
Construction: Land Uses and Plans	N/A	N/A	No cumulative impact. Land use impacts are assessed based on the proposed land use, rather than construction activities. Therefore, no cumulative construction-related impacts on land use would occur.	N/A	N/A	No cumulative impact. There would be no construction-related land use impacts under Alternative 3 long-term projects. Thus, no cumulative construction-related land use impacts are anticipated to occur.
Operation: Land Uses and Plans	3–4 and 10–15	4, 9, 12, and 16–17	Minor cumulative impact. The geographic context for the analysis of potential cumulative land use impacts is at a local scale. Land use compatibility issues are relevant at a local level, because they involve the interrelationship between land uses for the Alternatives and neighboring properties. Cumulative Projects 3 (GGNRA Dog Management Plan), 4 (GGNRA General Management Plan), 11 (Geothermal Systems), 12 (Solar Photovoltaic System), 13 (North Slope Seismic/Geologic Stabilization), 14 (Electrical System Upgrade Exterior Work), and 15 (Mental Health Patient Parking Addition) would not alter the existing land uses in the adjacent Fort Miley area. When Cumulative Projects 3 and 4 are considered from a cumulative perspective, potential cumulative land use impacts are limited. These NPS projects apply only to GGNRA lands and would not substantially affect land uses beyond the GGNRA, and the plans are programmatic documents with no project-specific land use impacts that would be cumulatively considerable. Neither projects would cause changes to land use or nearby communities such that they would result in a cumulative impact on land use. The other identified cumulative projects are not likely to	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. The geographic context for the analysis of potential cumulative land use impacts is at the local level, because of the interrelationship between land uses for Alternative 3 and the land uses of neighboring properties in and near the Mission Bay area. Development of adjacent cumulative projects would be compatible with operation of a potential new SFVAMC Mission Bay Campus. None of the identified cumulative projects would result in changes to land use or nearby communities such that they would have a cumulative impact on land use, because it is anticipated that they would be consistent with City zoning, plans, and policies. At the program level, Alternative 3 would not contribute to a significant cumulative land use impact.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			have substantial land use impacts, because the projects would be expected to follow local planning plans and policies and to be compatible with surrounding land uses. In addition, when the cumulative projects are viewed in combination with Alternative 1 or 2, there are no anticipated land use effects or conflicts with applicable land use plans and policies that could be compounded through this combination. Alternative 1 or 2 would not contribute to a significant cumulative land use impact. This would be a minor cumulative impact.			
NOISE AND VIBRATION						
Construction: Noise	4 and 12	4 and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternatives 1 and 2).”	1–26 and 28–86	1–26 and 28–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternative 3).”
Construction: Vibration	4 and 12	4 and 12	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternatives 1 and 2).”	1–26 and 28–86	1–26 and 28–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternative 3).”
Operation: Noise	1–5, 8, 10–15, and 19	4, 6–7, 9, 12, and 16–19	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternatives 1 and 2).”	1–26 and 28–86	1–26 and 28–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternative 3).”
Operation: Vibration	1–5, 8, 10–15, and 19	4, 6–7, 9, 12, and 16–19	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternatives 1 and 2).”	1–26 and 28–86	1–26 and 28–86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Noise and Vibration (Alternative 3).”
SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE						
Construction: Population and Employment	4 and 10	4 and 7	No cumulative impact. Construction of Alternative 1 or 2 projects in conjunction with the identified projects is anticipated to require construction crews derived from the local labor pool, depending on the various construction schedules. Both the greater Bay Area and San Francisco	7, 17–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 20–21, 26, 35, 41–46, 49–63, and 65–86	Minor cumulative impact. Construction of Alternative 3 long-term projects in conjunction with the identified cumulative projects is anticipated to require construction crews derived from the local labor pool, depending on the various construction schedules. Both the greater Bay Area

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			<p>proper have experienced a notable reduction in employment availability, including construction jobs, over the last decade. Thus, adding construction jobs that could be filled by Bay Area and/or San Francisco residents would be considered a beneficial cumulative impact related to growth inducement. In addition, construction of Alternative 1 or 2 projects in conjunction with the identified cumulative projects is not anticipated to impede residential or business activity in the community surrounding the existing SFVAMC Fort Miley Campus. Thus, there would be no displacement of persons, residences, or businesses, and no cumulative displacement impact would occur.</p>			<p>and San Francisco proper have experienced a notable reduction in employment availability, including construction jobs, over the last decade (between 2000 and 2010). Therefore, adding construction jobs that could be filled by Bay Area and/or San Francisco residents would be a beneficial cumulative impact related to growth inducement. The specific location of the potential new SFVAMC Mission Bay Campus proposed under Alternative 3 is unknown. Thus, it is unknown whether construction of Alternative 3 long-term projects in conjunction with the identified projects could impede residential or business activity in the surrounding community. However, displacement of persons, residences, or businesses is not anticipated to occur. The exact location of the potential new SFVAMC Mission Bay Campus and a detailed project design are unknown at this time and would require further evaluation when a location in the Mission Bay area is identified; therefore, this cumulative impact is anticipated to be minor.</p>
Construction: Environmental Justice	1–5, 8, 10–15, and 19	4, 6–7, 9, 12, and 16–19	Minor cumulative impact with implementation of LRDP-specific mitigation measures identified in this EIS	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. Construction of Alternative 3 long-term projects at the potential new SFVAMC Mission Bay Campus could have a minor cumulative impact. However, because the exact location of the potential Mission Bay Campus is unknown, a project-level NEPA analysis would be required once a specific location and site plan are determined.
Operation: Population and Employment	2, 8, and 10	7 and 9	No cumulative impact. Aside from the development of 49 residential units under Cumulative Project 9 (Safeway Redevelopment) and 39 residential units under Cumulative Project 10 (5400 Geary Boulevard), none of the cumulative projects listed in Table 4-1 include housing that could result in permanent residents. In addition, Alternatives 1 and 2 would not entail housing. Therefore, there would be no cumulative growth-inducement impact related to population and housing.	7, 17–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 20–21, 26, 35, 41–46, 49–63, and 65–86	No cumulative impact. Cumulative residential projects listed in Table 4-2 would result in a permanent population. However, Alternative 3 long-term projects would not entail housing. Therefore, there would be no cumulative growth-inducement impact related to population and housing. Project operation under Alternative 3 long-term projects in conjunction with the cumulative commercial and office projects listed in Table 4-2 would result in a cumulative increase in daily employment population. Both the greater

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			Project operation under Alternative 1 or 2 in conjunction with Cumulative Projects 2 (Merrie Way Visitor Center), 7 (Lincoln Park Steps Improvement), 8 (Albertsons Reuse), and 9 (Safeway Redevelopment) would result in a cumulative increase in daily employment population. Both the greater Bay Area and San Francisco proper have experienced a notable reduction in employment availability over the last decade (between 2000 and 2010); thus, the addition of jobs that could be filled by Bay Area and/or San Francisco residents would result in a beneficial cumulative growth-inducement impact.			Bay Area and San Francisco proper have experienced a notable reduction in employment availability over the last decade (between 2000 and 2010); therefore, adding jobs that could be filled by Bay Area and/or San Francisco residents would result in a beneficial cumulative growth-inducement impact.
Operation: Environmental Justice	1–5, 8, 10–15, and 19	4, 6–7, 9, 12, and 16–19	Minor cumulative impact with implementation of LRDP-specific mitigation measures identified in this EIS.	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. Operation of Alternative 3 long-term projects at the potential new SFVAMC Mission Bay Campus could have a minor cumulative impact. However, because the exact location of the potential Mission Bay Campus is unknown, a project-level NEPA analysis would be required once a specific location and site plan are determined.

SOLID AND HAZARDOUS MATERIALS AND HAZARDS

Construction: Solid Waste Generation	4 and 10	4 and 9	Minor cumulative impact. The level of cumulative impacts related to solid waste is based on a determination of whether the facilities constructed under Alternative 1 or 2 would be served by a landfill whose permitted capacity would be exceeded by accommodating the projected solid-waste disposal needs. The construction of three projects Cumulative Projects 4 (GGNRA General Management Plan), 9 (Safeway Redevelopment), and 10 (5400 Geary Boulevard)—may occur concurrently with Alternative 1 or 2. The total construction disposal volumes for the cumulative projects are unknown; however, construction activities for these cumulative projects and Alternative 1 or 2 would increase the demand on regional landfill capacity. In accordance with City Ordinance No. 27-06, the Construction and Demolition Debris Recovery Ordinance, which regulates construction and demolition debris for projects under City jurisdiction, at least 65 percent of waste generated during	N/A	2, 4, 8, and 24–25	Minor cumulative impact. The total construction disposal volumes for the cumulative projects are unknown; however, construction activities for these projects and Alternative 3 long-term projects would increase the demand on regional landfill capacity. In accordance with City Ordinance No. 27-06, the Construction and Demolition Debris Recovery Ordinance, which regulates construction and demolition debris for projects under City jurisdiction, at least 65 percent of waste generated during construction of these projects would be reused or recycled and diverted from landfills. In addition, in accordance with the VA SSPP, at least 50 percent of waste generated during construction of Alternative 3 long-term projects would be reused or recycled and diverted from landfills. Further, the landfills located in the region, including Keller Canyon and Redwood Sanitary, both currently have ample capacity and at least 20 years of
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Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			<p>construction of these cumulative projects would be reused or recycled and diverted from landfills. In addition, in accordance with the VA SSPP, at least 50 percent of waste generated during construction of Alternative 1 or 2 projects would be reused or recycled and diverted from landfills. Further, the landfills located in the region, including Keller Canyon (Pittsburg) and Redwood Sanitary (Novato), both currently have ample capacity and at least 20 years of remaining capacity to receive waste from their service areas. Therefore, there would be a minor cumulative impact related to solid waste and landfill capacity during construction.</p>			<p>remaining capacity to receive waste from their service areas. Therefore, there would be a minor cumulative impact related to landfill capacity during construction.</p>
Construction: Hazardous Materials Exposure and Hazards and Public Safety	4 and 10	4 and 9	<p>Minor cumulative impact. The level of cumulative impacts related to hazardous materials is based on determining whether the facilities constructed and operated under Alternative 1 or 2 would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or would create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and exposing the public to unhealthy levels of hazardous materials.</p> <p>As described previously under “Solid Waste,” the construction of Cumulative Projects 4 (GGNRA General Management Plan), 9 (Safeway Redevelopment), and 10 (5400 Geary Boulevard) may occur concurrently with Alternative 1 or 2. These projects could result in generation of hazardous wastes such as asbestos from friable building materials, lead-based paint on building surfaces, and hazardous wastes from lighting fixtures. In addition, previously unknown contamination, possibly the result of improper disposal or housekeeping activities, may be discovered as structures are demolished. Cumulative development could expose construction workers to health or safety risks through exposure to hazardous materials,</p>	N/A	2, 4, 8, and 24–25	<p>Minor cumulative impact. The level of cumulative impacts related to hazardous materials is based on a determination of whether the facilities constructed and operated under Alternative 3 would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and exposing the public to unhealthy levels of hazardous materials.</p> <p>The construction of several cumulative projects listed in Table 4-2—City and County of San Francisco as Successor to SF Redevelopment Projects 2 and 4, UCSF Project 8, and SF Port Projects 24–25—may occur concurrently with Alternative 3 long-term projects. These projects could result in generation of hazardous wastes such as asbestos from friable building materials, lead-based paint on building surfaces, and hazardous wastes from lighting fixtures. In addition, previously unknown contamination, possibly the result of improper disposal or housekeeping activities, may be discovered as structures are demolished. Cumulative development could expose construction workers to health or safety risks by exposing them to hazardous materials,</p>

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			<p>although the individual workers potentially affected would vary from project to project. Construction activities of the cumulative development (e.g., trenching and operation of large equipment) could also pose a risk to public safety.</p> <p>To minimize construction risks from exposure to hazardous materials, all hazardous materials would be stored, used, transported, and disposed of in strict accordance with all local, State, and federal hazardous waste regulations. Occupational Safety and Health Administration (OSHA) regulations also mandate an initial training course and subsequent annual training for hazardous waste workers. Worker safety regulations would require the preparation and implementation of site-specific health and safety plans in accordance with OSHA requirements. Further, SFVAMC would be required to adhere to the regulations and standards for inspection, abatement, exposure, and disposal of hazardous building materials, including lead, polychlorinated biphenyls (PCBs), and mercury, identified in VA Specification Section 028333.13, “Lead-Based Paint Removal and Disposal.” In addition, the construction contractor would be required to submit a site-specific environmental protection plan in accordance with Section 015719 of the VA Specifications. This plan would describe the BMPs that would be implemented to minimize the risks from the use, storage, handling, and transport of hazardous materials and the contingency protocols to be implemented in the event of an accidental release or exposure during construction. Standard construction BMPs such as exclusion fencing around active construction zones would minimize impacts on public safety. Therefore, there would be a minor cumulative impact related to hazardous materials exposure and to hazards and public safety during construction.</p>			<p>although the individual workers potentially affected would vary from project to project. Construction activities of the cumulative development (e.g., trenching and operation of large equipment) could also pose a risk to public safety.</p> <p>To minimize construction risks from exposure to hazardous materials, all hazardous materials would be stored, used, transported, and disposed of in strict accordance with all local, State, and federal hazardous waste regulations. Further, SFVAMC would be required to adhere to the regulations and standards for inspection, abatement, exposure, and disposal of hazardous building materials, including lead, PCBs, and mercury, identified in VA Specification Section 028333.13, “Lead-Based Paint Removal and Disposal.” In addition, the construction contractor would be required to submit an environmental protection plan in accordance with Section 015719 of the VA Specifications. This plan would describe the BMPs that would be implemented to minimize the risks from the use, storage, handling, and transport of hazardous materials and the contingency protocols to be implemented in the event of an accidental release or exposure during construction. Standard construction BMPs such as exclusion fencing around active construction zones would minimize impacts on public safety. Compliance with this environmental protection plan and applicable federal, State, and local hazardous waste regulations would minimize the cumulative contribution of Alternative 3 long-term projects to potential hazardous materials exposure and to hazards and public safety. Therefore, there would be a minor cumulative impact related to hazardous materials exposure during construction.</p>
Operation: Solid Waste Generation	2 and 10	9	Minor cumulative impact. The level of cumulative impacts related to solid waste is based on a determination of whether the facilities operated under Alternative 1 or 2 would be served by a landfill whose permitted capacity would be	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. An increase in the generation of solid waste during operation of Alternative 3 long-term projects is anticipated; however, the VA SSPP has a nonhazardous solid-waste diversion target intended to

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			<p>exceeded by accommodating the projected solid-waste disposal needs. An increase in the generation of solid waste during operation of Alternative 1 or 2 projects as well as Cumulative Projects 2 (Merrie Way Visitor Center), 9 (Safeway Redevelopment), and 10 (5400 Geary Boulevard) is anticipated. However, the VA SSPP has a nonhazardous solid waste diversion target of 50 percent by 2015, which is intended to minimize the amount of waste transported to landfills. Further, the anticipated volume of solid waste could be accommodated by landfills located in the region, including Keller Canyon with approximately 84 percent remaining capacity and Redwood Sanitary with approximately 67 percent remaining capacity. Therefore, there would be a minor cumulative impact.</p>			<p>minimize the amount of waste transported to landfills. Further, the anticipated volume of solid waste from Alternative 3 long-term projects and all of the cumulative projects identified in Table 4-2 could be accommodated by landfills located in the region. These landfills include Keller Canyon with approximately 84 percent remaining capacity and Redwood Sanitary with approximately 67 percent remaining capacity. Therefore, there would be a minor cumulative impact related to landfill capacity during operation.</p>
Operation: Hazards and Public Safety	1–5, 8, 10–15, and 19	4, 6–7, 9, 12, and 16–19	<p>Minor cumulative impact. The level of cumulative impacts related to hazardous materials is based on determining whether the facilities operated under Alternative 1 or 2 would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or would create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and exposing the public to unhealthy levels of hazardous materials.</p> <p>Operation of Alternative 1 or 2 projects and the identified cumulative projects would not permanently alter the quantity of hazardous materials routinely used, transported, and stored compared to baseline conditions, because operation of cumulative projects would be similar to operation under existing conditions. Further, facilities where hazardous materials are used must be operated in compliance with current laws and regulations, which require that hazardous materials be stored to minimize exposure to people or the environment and the potential for inadvertent releases. These materials would be used, stored, and disposed of in accordance with applicable laws and regulations. This would</p>	7, 9–12, and 15–17	2, 7–8, and 17	<p>Minor cumulative impact. Alternative 3 would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and exposing the public to unhealthy levels of hazardous materials.</p> <p>In addition to Alternative 3 long-term projects, other cumulative projects, particularly those involving development of medical and research facilities, which include City and County of San Francisco as Successor to SF Redevelopment Project 2 and UCSF Projects 7–12 and 15–17, are anticipated to require the routine use of hazardous materials. Facilities where hazardous materials are used must be operated in compliance with current laws and regulations, which require that hazardous materials be stored in a manner that minimizes exposure to people or the environment and the potential for inadvertent releases. These materials must also be labeled to inform users of potential risks and to instruct them in appropriate storage, handling, and disposal procedures and the use of hazardous materials. Generation of wastes would continue to be</p>

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			<p>require facilities to update their existing hazardous-materials certificates of registration, and to maintain updated site maps, inventories of hazardous materials, training plans, and emergency operation plans.</p> <p>Materials must also be labeled to inform users of potential risks and to instruct them in appropriate storage and handling. Disposal procedures and the use of hazardous materials and generation of wastes would continue to be regulated under the authority of the San Francisco Hazardous Materials Unified Program Agency under a compliance certificate. All potentially foreseeable projects would be required to comply with applicable statutes and regulations, which would ensure that impacts related to the transport, use, storage, and disposal of hazardous materials would not be adverse. Adherence to these regulations would also minimize the risk of upset or accident related to the handling of hazardous materials. For the aforementioned reasons, there would be a minor cumulative impact related to hazardous materials exposure during operation.</p>			<p>regulated under the authority of the San Francisco Hazardous Materials Unified Program Agency under a compliance certificate. All potentially foreseeable projects would be required to comply with applicable statutes and regulations, which would ensure that impacts related to the transport, use, storage, and disposal of hazardous materials, would not be adverse. Adherence to these regulations would also minimize the risk of upset or accident related to the handling of hazardous materials. There would be a minor cumulative impact.</p>
TRANSPORTATION, TRAFFIC, AND PARKING						
Construction: Traffic, Transit, and Parking	1-2, 4-5, 8, 10-15, and 19	4, 6-7, 9, 12, and 16-19	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Transportation, Traffic, and Parking (Alternatives 1 and 2).”	1-26 and 28-86	1-6, 7-17, 18-23, 24-26, 28-80, 81-85, and 86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Transportation, Traffic, and Parking (Alternative 3).”
Operation: Traffic, Transit, and Parking	1-5, 8, 10-15, and 19	4, 6-7, 9, 12, and 16-19	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Transportation, Traffic, and Parking (Alternatives 1 and 2).”	1-26 and 28-86	1-26 and 28-86	Potential for significant cumulative impact. Retained for further, or more detailed, analysis of potential cumulative impacts. See “Cumulative Impact Analysis—Transportation, Traffic, and Parking (Alternative 3).”
UTILITIES						
Construction: Water Supply	1-2, 4, 10-15, and 19	4, 9, 12, 14, 17, and 19	Minor cumulative impact. Construction activities for the identified cumulative projects in conjunction with Alternative 1 or 2 would not result in a substantial amount of water consumption. Thus, construction of identified cumulative projects in conjunction with Alternative 1 or 2	7 and 17	1-8, 17, 19-25, 81, and 84-86	Minor cumulative impact. Construction activities for the identified projects in conjunction with Alternative 3 would not result in a substantial amount of water consumption. Thus, construction of identified projects in conjunction with Alternative 3 would not require or result in the construction

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			would not require or result in the construction of new water distribution infrastructure or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative water supply impact.			of new water distribution infrastructure or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, there would be a minor cumulative water supply impact.
Construction: Wastewater	4 and 10	4 and 9	No cumulative impact. Construction activities for the identified cumulative projects in conjunction with Alternative 1 or 2 would not result in a substantial amount of wastewater reaching SFPUC’s combined wastewater/stormwater system. Therefore, construction of the identified projects in conjunction with Alternative 1 or 2 would not require or result in the construction of new combined wastewater/stormwater drainage infrastructure or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, no cumulative wastewater impact would occur during construction.	7 and 17	1–8, 17, 19–25, 81, and 84–86	No cumulative impact. Construction activities for the identified projects in conjunction with Alternative 3 would not result in a substantial amount of wastewater reaching SFPUC’s combined wastewater/stormwater system. Thus, construction of the identified projects in conjunction with Alternative 3 long-term projects would not require or result in the construction of new combined wastewater/stormwater drainage infrastructure or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, no cumulative wastewater impact would occur during construction.
Construction: Electricity and Natural Gas	1–2, 4–5, 8, 10–15, and 19	4, 6–7, 9, 12, and 16–19	Minor cumulative impact. Construction activities for the identified projects in conjunction with Alternative 1 or 2 would not result in a substantial amount of electricity consumption, and would result in no natural gas consumption. Thus, construction of the identified projects in conjunction with Alternative 1 or 2 would not require or result in the construction of new electricity or natural gas generation or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative electricity and natural gas impact.	7 and 17	1–8, 17, 19–25, 81, and 84–86	Minor cumulative impact. Construction activities by the identified projects in conjunction with Alternative 3 long-term projects would not result in a substantial amount of electricity consumption or any natural gas consumption. Construction of identified cumulative projects in conjunction with Alternative 3 long-term projects would not require or result in the construction of new electricity or natural gas generation or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative electricity and natural gas impact.
Operation: Water Supply	2, 4, 8, 10–13, and 19	4, 9, 12, and 16	Minor cumulative impact. SFPUC’s regional water system provides water to 2.4 million people, as well as to retail and wholesale customers in San Francisco, San Mateo, Santa Clara, Alameda, and Tuolumne Counties. As part of its planning for future water supply needs, SFPUC has conducted comprehensive planning studies to assess water	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. As part of its planning for future water supply needs, SFPUC has conducted comprehensive planning studies to assess water demands through the year 2035. SFPUC has adequate supplies to meet the demand for water in its service area through 2035, and is in the process of identifying future supplies and

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			demands through the year 2030. SFPUC has adequate supplies to meet the demand for water within its service area through 2030, and is in the process of identifying future supplies and establishing conservation programs to meet demand in the event of a 3-year drought. In addition, San Francisco’s Green Building Ordinance requires new buildings to reduce their water consumption, which also helps address the need to accommodate additional water needs for planned future development. Furthermore, as described in Section 3.14, “Utilities,” growth projections used in SFPUC’s 2010 Urban Water Management Plan for San Francisco included implementation of Alternative 1 or 2. As a result of the City’s and SFPUC’s planning efforts, implementing identified cumulative projects in conjunction with Alternative 1 or 2 would not require or result in the construction of new water treatment facilities, construction of new water facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative water supply impact.			establishing conservation programs to meet demand in the event of a 3-year drought. In addition, San Francisco’s Green Building Ordinance requires new buildings to reduce their water consumption, which also helps address the need to accommodate additional water needs for planned future development. Alternative 3 would also involve implementing the VA SSPP, including a 26 percent reduction target in potable water use and a 20 percent reduction in industrial and landscaping water use by 2020. Because of these water conservation measures and as a result of SFPUC’s planning efforts, implementing the identified projects in conjunction with Alternative 3 long-term projects would not require or result in the construction of new water treatment facilities, construction of new water facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative water supply impact.
Operation: Wastewater	1–2, 4, 8, 10–11, and 15	4 and 9	Minor cumulative impact. SFPUC’s <i>San Francisco Sewer System Master Plan</i> and <i>Sewer System Improvement Plan</i> were implemented to accommodate the need for additional sewer system capacity for planned future development through 2030 by implementing capital improvements. In addition, San Francisco’s Green Building Ordinance requires new buildings to reduce their water consumption, which in turn reduces wastewater generation by planned future development. Furthermore, as described in Section 3.14, “Utilities,” SFPUC is currently evaluating the implementation of a Sewer System Improvement Program to address issues associated with aging infrastructure and system deficiencies related to climate change, and to improve operational efficiency and reduce community impacts. As a result of the City’s and SFPUC’s planning efforts, implementing the identified projects in conjunction with	1–26 and 28–86	1–26 and 28–86	Minor cumulative impact. Implementing SFPUC’s <i>San Francisco Sewer System Master Plan</i> and <i>Sewer System Improvement Plan</i> would accommodate the need for additional sewer system capacity for planned future development through 2030 by implementing capital improvements. In addition, San Francisco’s Green Building Ordinance requires new buildings to reduce their water consumption, which in turn reduces wastewater generation by planned future development. Alternative 3 would also involve implementing the VA SSPP, which would provide guidelines and practices regarding water conservation and stormwater management. Implementing these guidelines would reduce the impact of potentially increased wastewater loads on existing infrastructure and its limited capacity, and would reduce stormwater runoff rates and volumes as compared to existing conditions.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			Alternative 1 or 2 would not require or result in the construction of new wastewater treatment facilities, construction of new wastewater facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative water supply impact.			As a result of these planning efforts and conservation features, implementing the identified projects in conjunction with Alternative 3 long-term projects would not require or result in the construction of new wastewater treatment facilities, construction of new wastewater facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative impact related to wastewater.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Operation: Electricity and Natural Gas	1-2, 4, 8, 10, and 15	4 and 9	<p>Minor cumulative impact. San Francisco’s Green Building Ordinance requires new buildings to reduce their energy consumption, which also helps address the need to accommodate additional energy needs for planned future development. In addition, the VA SSPP requires SFVAMC to incorporate physical features and operational measures that sustain and improve environmental efficiencies through a sustainable design master plan to achieve a 26.6 percent reduction in GHG emissions, which would result in a decrease in electricity and natural gas consumption. Furthermore, as described in Section 3.14, “Utilities,” the existing system at the SFVAMC Fort Miley Campus has been upgraded through the Electrical Systems Upgrades Project and solar photovoltaic and geothermal systems have been constructed to reduce the need to purchase electricity from off-site supplies, which contribute to achieving energy efficiency and GHG reduction goals established by VA and Executive Order 13514.</p> <p>As a result of the City’s and SFVAMC’s energy efficiency efforts, implementing the identified cumulative projects in conjunction with Alternative 1 or 2 would not require or result in the construction of new electricity or natural gas generation or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative impact related to electricity consumption and natural gas consumption during operation of Alternative 1 or 2 projects.</p>	1-26 and 28-86	1-26 and 28-86	<p>Minor cumulative impact. San Francisco’s Green Building Ordinance requires new buildings to reduce their energy consumption, which also helps address the need to accommodate additional energy needs for planned future development. In addition, the VA SSPP requires SFVAMC to incorporate physical features and operational measures that sustain and improve environmental efficiencies through a sustainable design master plan to achieve a 30 percent reduction in GHG emissions for buildings and a 29.6 percent reduction for the fleet (vehicles) by 2020, which would result in a decrease in electricity and natural gas consumption.</p> <p>As a result of the City’s and SFVAMC’s energy efficiency efforts, implementing the identified projects in conjunction with Alternative 3 long-term projects would not require or result in the construction of new electricity or natural gas generation or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Thus, there would be a minor cumulative impact related to electricity or natural gas consumption during the operational phase.</p>

WILDLIFE AND HABITAT

Construction: Vegetation/Habitat	4	4	<p>Minor cumulative impact. Cumulative impacts on trees (i.e., removal) could occur during various construction activities for the preservation and enhancement of historic structures and landscapes, and the improvement of picnicking and group camping facilities in the GGNRA under Cumulative Project 4 (GGNRA General Management Plan) in conjunction with construction under Alternative 1 or 2. Landscape and access improvements to East and West</p>	7, 17-18, 27-28, 30-34, 36-40, 47-48, and 64	1-8, 17, 20-21, 26, 35, 41-46, 49-63, and 65-86	<p>No cumulative impact. Because of the area’s long history of industrial use, the undeveloped portions of Mission Bay provide no vegetation or habitat.</p>
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Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			Fort Miley undertaken as part of Cumulative Project 4 also could result in tree removal. It is assumed that portions of the understory also would be removed during tree removal. Much of the area surrounding the existing SFVAMC Fort Miley Campus is covered with nonnative species. Although Monterey pine and Monterey cypress are native species, they were often planted. Eucalyptus is also found in the GGNRA. The selective removal of trees and associated understory would likely occur throughout the planning horizon of the GGNRA General Management Plan. According to the GGNRA (2009), the evolving preferred alternative for the Fort Miley and Lands End areas emphasizes protection of natural habitat values, including areas used by migrating birds. Thus, it is assumed that the GGNRA would remove trees from their lands with the goal of protecting areas used by migratory birds. Although localized cumulative impacts on migratory birds (and bats) could occur during construction, this would be a minor cumulative impact.			
Construction: Federally Listed Plant/Wildlife Species	4	4	No cumulative impact. The area of the Visitor Center at Merrie Way and Point Lobos Avenue (Cumulative Project 2) does not have habitat for the federally listed plant species that have the potential to occur in the area: Presidio manzanita, Presidio clarkia, beach layia, and San Francisco lessingia. Thus, no cumulative impact would result from construction of that project in conjunction with Alternative 1 or 2. Potential habitat for the Presidio manzanita is located outside of the footprint of Alternatives 1 and 2, and potential habitat may exist on the lands of GGNRA surrounding the existing SFVAMC Fort Miley Campus. Other coastal scrub species (such as Presidio clarkia, beach layia, and San Francisco lessingia) have low potential to occur on GGNRA lands as well. Projects proposed under Cumulative Project 4 (GGNRA General Management Plan) may have low potential to affect these species if present. As noted in Section 3.15, “Wildlife and Habitat,” Alternative 1 (and 2) does not have the potential for an adverse impact on federally species specplant species during construction	7, 17–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 20–21, 26, 35, 41–46, 49–63, and 65–86	No cumulative impact. Because of the area’s long history of industrial use, the undeveloped portions of Mission Bay provide no habitat for federally listed plants, federally listed wildlife species, and other species of special regional concern. Therefore no impact on federally listed plants, federally listed wildlife species, and other species of special regional concern is anticipated.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
			<p>activities. Therefore, no cumulative impact on federally listed plant species is anticipated to occur during construction. The California Natural Diversity Database notes one occurrence of the California red-legged frog within the Lands End area of the GGNRA. While projects proposed under within GGNRA lands may have the potential to affect this species, Alternatives 1 and 2 do not have the potential for an adverse impact on California red-legged frog during construction activities. Thus, no cumulative operational impact on this species would occur during construction.</p>			
Construction: Other Species of Special Regional Concern	4	4	<p>Minor cumulative impact. The area of the Visitor Center at Merrie Way and Point Lobos Avenue (Cumulative Project 2) does not have habitat for the other species of special regional concern. Thus, no cumulative impact would result from the construction of that project in conjunction with Alternative 1 or 2. Potentially adverse effects on other species of special regional concern could occur because of vegetation removal as part of projects for Cumulative Project 4 (GGNRA General Management Plan). These effects could affect nesting birds, monarch butterfly, western red bat, hoary bat, and three plants (Franciscan manzanita, San Francisco Bay spineflower, and Franciscan thistle). Therefore, there would be a potentially adverse cumulative impact on species of regional concern. Section 3.15, “Wildlife and Habitat,” evaluates the impacts of Alternatives 1 and 2 on these other species and proposed mitigation measures, which would reduce this impact to a minor level. Thus, with implementation of the project measures noted in Section 3.15, Alternative 1 or 2 would not contribute considerably to cumulative biological resource impacts noted above. Therefore, there would be a minor cumulative impact on species of special regional concern during construction.</p>	7, 17–18, 27–28, 30–34, 36–40, 47–48, and 64	1–8, 17, 20–21, 26, 35, 41–46, 49–63, and 65–86	<p>No cumulative impact. Because of the area’s long history of industrial use, the undeveloped portions of Mission Bay provide no habitat for federally listed plants, federally listed wildlife species, and other species of special regional concern. Therefore no impact on federally listed plants, federally listed wildlife species, and other species of special regional concern is anticipated.</p>

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Construction: Habitat Linkages and Corridors	4	4	No cumulative impact. The area of the Visitor Center at Merrie Way and Point Lobos Avenue does not provide habitat linkages or corridors. Thus, no cumulative impact would result from the construction of that project in conjunction with Alternative 1 or 2. Projects within GGNRA lands may have the potential to disrupt habitat linkages and corridors by removing vegetation and creating greater access to areas that are currently not accessible. However, Alternatives 1 and 2 would have no impact on habitat linkages or corridors. Thus, no cumulative impact on habitat linkage and corridors would occur during construction.	17–18, 27–28, 30–34, 36–40, 47–48, and 64	17, 20–21, 26, 35, 41–46, 49–63, and 65–86	No cumulative impact. Because of the area’s long history of industrial use, the undeveloped portions of Mission Bay do not provide habitat linkages or corridors. Therefore Alternative 3 long-term projects would have no impact on habitat linkages or corridors.
Operation: Vegetation/Habitat	1–4	4	Minor cumulative impact. Operation of Cumulative Project 2 (Merrie Way Visitor Center) does not involve tree removal, because operational activities would consist of facility maintenance activities; thus, no cumulative impact on wildlife or habitat would result from the operation of that project and Alternative 1 or 2. For the most part, the GGNRA cumulative projects (1–4 ⁸) would have few operational impacts on vegetation or habitat, because operational activities would consist of maintenance activities that are similar to current activities. Thus, there would be a minor cumulative operational impact on vegetation or habitat.	1–26 and 28–86	1–26 and 28–86	No cumulative impact. Operation of the identified cumulative projects would not affect habitat linkages or corridors, because operational activities for these projects would consist of facility maintenance. Thus, no operational cumulative impacts would result.

⁸ USS San Francisco Memorial Parking Lot Renovation, Merrie Way Visitor Center, GGNRA Dog Management Plan, and GGNRA General Management Plan.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	
Operation: Federally Listed Plant/Wildlife Species	1-4 ⁹	4	No cumulative impact. Operation of most identified cumulative projects would not affect federally listed plant or wildlife species, because operational activities would consist of facility maintenance within existing developed areas. In addition, identified cumulative projects within GGNRA lands would have few operational impacts on California red-legged frog, because operational activities would consist of maintenance activities that are similar to current activities. Thus, there would be a minor cumulative operational impact on this species.	N/A	N/A	No cumulative impact. Operation of the identified cumulative projects would not affect federally listed plants or wildlife species, because operational activities would consist of facility maintenance within existing developed areas. Thus, no cumulative impact would result from operation of cumulative projects.
Operation: Other Species of Special Regional Concern	4	4	Minor cumulative impact. Implementation of LRDP-specific mitigation measures identified in this EIS will ensure only a minor cumulative impact. Operation of Cumulative Project 2 (Merrie Way Visitor Center) would not affect other species of special regional concern because operational activities would consist of facility maintenance. Thus, no cumulative impact would be associated with the operation of that project and Alternative 1 or 2. For the most part, Cumulative Project 4 (GGNRA General Management Plan) would have few operational impacts on other species of special regional concern, because operational activities would consist of maintenance activities that are similar to current activities. Thus, little to no potential exists for cumulative operational impacts on those species.	N/A	N/A	No cumulative impact. Operation of the identified cumulative projects would not affect other species of regional concern, because operational activities would consist of facility maintenance. Thus, no cumulative impact would result from operation of cumulative projects.
Operation: Habitat Linkages and Corridors	4	4	Minor cumulative impact. Operation of Cumulative Project 2 (Merrie Way Visitor Center) would not affect other species of special regional concern, because operational activities would consist of facility maintenance. Thus, no cumulative impact would result from the operation of that project and Alternative 1 or 2. For the most part, Cumulative Project 4 (GGNRA General Management Plan) would have few operational impacts on linkages or corridors, because operational activities would consist of maintenance activities	N/A	N/A	No cumulative impact. Operation of the identified cumulative projects would not affect habitat linkages or corridors, because operational activities for these projects would consist of facility maintenance. Thus, no cumulative impact would result from the operation cumulative projects.

⁹ USS San Francisco Memorial Parking Lot Renovation, Merrie Way Visitor Center, GGNRA Dog Management Plan, and GGNRA General Management Plan.

Table 4-3: Cumulative Environmental Impacts

Impact Area	Other Past, Present, and Future Projects in Cumulative Study Area for Alternatives 1 and 2 (see Table 4-1 for details) ⁴		Cumulative Impact of Alternatives 1 and 2	Other Past, Present, and Future Projects in Cumulative Study Area for Alternative 3 (see Table 4-2 for details)		Cumulative Impact of Alternative 3
	Past Actions	Present and Future Actions		Past Actions	Present and Future Actions	

that are similar to current activities. Thus, little to no potential exists for cumulative operational impacts. Therefore, there would be a minor cumulative operational impact on habitat linkages and corridors.

Notes: BMP = best management practice; CSO = combined sewer overflow; CWA = Clean Water Act; EIS = environmental impact statement; EISA = Energy Independence and Security Act; EMS = emergency medical services; GGNRA = Golden Gate National Recreation Area; GHG = greenhouse gas; LID = Low Impact Development; LRDP = *Long Range Development Plan*; N/A = not applicable; NEPA = National Environmental Policy Act; NPDES = National Pollutant Discharge Elimination System; NPS = National Park Service; OSHA = Occupational Safety and Health Administration; SFPD = San Francisco Police Department; SF Planning = San Francisco Planning Department; SF Port = Port of San Francisco; SFPUC = San Francisco Public Utilities Commission; SF Redevelopment = San Francisco Redevelopment Agency; SFRPD = San Francisco Recreation and Park Department; SFVAMC = San Francisco Veterans Affairs Medical Center; SWPPP = storm water pollution prevention plan; VA = U.S. Department of Veterans Affairs; VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*

Source: Data compiled by AECOM in 2015

4.4 CUMULATIVE IMPACT TOPICS WITH FURTHER ANALYSIS

The following environmental resource areas are retained for further analysis and discussion.

4.4.1 Air Quality

Alternatives 1 and 2

Criteria Pollutants

Construction

The geographic context for the analysis of potential cumulative construction-related air quality impacts includes projects in the vicinity of the existing SFVAMC Fort Miley Campus that would be constructed between 2013 and 2027. Past, present, and probable future cumulative projects within these geographic and temporal contexts include most cumulative projects listed in Table 4-1. Therefore, the projects from Table 4-1 considered in this analysis of cumulative construction-related impacts from criteria pollutant emissions include Cumulative Projects 4 (GGNRA General Management Plan), 7 (Lincoln Park Steps Improvement), 9 (Safeway Redevelopment), and 10 (5400 Geary Boulevard). Implementing Alternative 1 or 2 in combination with the aforementioned cumulative projects could result in an increase in regional short-term construction-related criteria air pollutant and precursor emissions.

Criteria air pollutants are regional and cumulative by nature, and are controlled by local air district's air quality management plans and the State Implementation Plan (SIP). The *de minimis* evaluation performed for Alternatives 1 and 2 covers both project-specific and cumulative emissions by assessing the incremental contribution of both short- and long-term construction emissions of criteria pollutants to the region's budget. Additionally, each project mentioned in the previous paragraph would need to comply with the local air quality management plan or the SIP.

Under Alternative 1 or 2, the short-term projects would involve construction of an estimated 384,452 net new square feet and the long-term projects would involve construction of an additional 170,000 net new square feet. This is a large project relative to the other cumulative projects (see Table 4-1 for net totals of cumulative projects). However, construction would occur over a finite time period (2013–2027), and the emissions would occur only during this time period, unlike operational emissions, which would occur over the lifetime of the projects.

The *de minimis* thresholds would not be exceeded (even when overlapping construction and operational emissions were combined under the Alternative 1 scenario—see Tables 3.2-7 and 3.2-11 in Section 3.2, “Air Quality,” for Alternative 1 and Tables 3.2-15 and 3.2-19 for Alternative 2). The other, aforementioned projects also would be required to meet applicable California Environmental Quality Act (CEQA) or NEPA thresholds. Therefore, implementing Alternative 1 or 2 would not make a considerable contribution to cumulative emissions of criteria pollutants, and this would be a minor cumulative impact.

Operation

The geographic context for the analysis of potential cumulative operational air quality impacts includes locations in which the projects listed in Table 4-1 would be operational after the year 2020. The projects from Table 4-1 considered in this analysis of cumulative operational impacts from criteria pollutant emissions include Cumulative Projects 2 (Merrie Way Visitor Center), 4 (GGNRA General Management Plan), 5 (Cabrillo Playground Renovation), 7 (Lincoln Park Steps Improvement), 8 (Albertsons Reuse), 9 (Safeway Redevelopment), 10 (5400 Geary Boulevard), and 12 (Solar Photovoltaic System). Implementing Alternative 1 or 2 in combination with the aforementioned cumulative projects could result in an increase in regional, long-term operational emissions of criteria air pollutants and precursors.

The *de minimis* evaluation performed for Alternatives 1 and 2 covers both project-specific and cumulative emissions by assessing the incremental contribution of both short- and long-term operational emissions of criteria pollutants to the region's budget. Additionally, all cumulative projects identified above would have to comply with the local air quality management plan or the SIP.

Under Alternative 1 or 2, an estimated 554,452 net new square feet would be constructed (a combination of the short-term and long-term projects). This total is large relative to the cumulative projects listed in Table 4-1; however, the *de minimis* thresholds would not be exceeded (even when overlapping construction and operational emissions were combined under the Alternative 1 scenario; see Tables 3.2-12 and 3.2-20 in Section 3.2, "Air Quality"). In addition, the other, aforementioned projects would be required to meet applicable NEPA thresholds. Therefore, implementing Alternative 1 or 2 would not make a considerable contribution to cumulative emissions of criteria pollutants during the operational phase, and this would be a minor cumulative impact.

Localized Carbon Monoxide Emissions**Operation**

Implementing Alternative 1 or 2 in combination with the cumulative projects listed in Table 4-1 (except Cumulative Project 3 [GGNRA Dog Management Plan]) could result in an increase in vehicle volumes at local intersections. The area near the existing SFVAMC Fort Miley Campus is largely built out, and future traffic volumes, when added to those generated by Alternative 1 or 2, would not be sufficient to cause a carbon monoxide (CO) hotspot. (See the traffic study in Appendix E for future traffic volumes related to regional growth in the area and traffic volumes generated by the projects for Alternative 1 or 2.) Therefore, implementing Alternative 1 or 2 would not make a considerable contribution to CO hotspot formation during the operational phase, and this would be a minor cumulative impact.

Localized Emissions of Toxic Air Contaminants and Particulate Matter**Construction and Operation**

To determine the significance of cumulative localized impacts of toxic air contaminants (TACs) and fine particulate matter (PM_{2.5}), Bay Area Air Quality Management District thresholds were used. Exposure of sensitive receptors to TACs and PM_{2.5} would be considered cumulatively significant if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius of the fence line (or beyond, where appropriate)

for a source or from the location of a receptor, plus the contribution from Alternative 1 or 2, would exceed the following:

- an excess cancer risk level of more than 100 in 1 million or a chronic hazard index greater than 10 for TACs; or
- 0.8 microgram per cubic meter annual average PM_{2.5}.

A detailed health risk assessment was conducted for Alternative 1 and 2 short-term and long-term projects to determine the incremental contribution of those projects during construction to potential health risks in the area. Because the assessment of potential health risks from Alternatives 1 and 2 evaluated the incremental contribution of SFVAMC development combined with known existing and planned sources (i.e., cumulative projects), the assessment of project-level impacts is also considered to address cumulative impacts. As stated in Section 3.2, “Air Quality,” of this EIS, localized construction emissions of TACs and PM_{2.5} would be minor with implementation of Mitigation Measures AIR-1 and AIR-2, and the impacts of localized operational emissions of TACs and PM_{2.5} under Alternatives 1 and 2 would be minor.

Odors

Construction

Implementing Alternative 1 or 2 in combination with the cumulative projects listed in Table 4-1 could result in an increase to local construction-related odor emissions. Localized odor emissions associated with construction could occur near sensitive receptors (patients at the existing SFVAMC Fort Miley Campus and nearby residents) during an 11-year period. However, these odors would be temporary, would occur during business hours during the construction period, and would disperse quickly given the wind in the area. In addition, because of the localized nature of construction-related odors and the distance to nearby cumulative projects (Cumulative Project 4 [GGNRA General Management Plan] is the closest to the existing SFVAMC Fort Miley Campus) and because these projects have already been constructed, the cumulative projects would not make a considerable contribution to localized odor emissions. This would be a minor cumulative impact.

Operation

Implementing Alternative 1 or 2 in combination with the cumulative projects listed in Table 4-1 could result in an increase in local operational odor emissions. Operational impacts related to exposure of sensitive receptors to odor emissions under Alternative 1 or 2 would be minor after mitigation. As described previously, there is currently no odor complaint history for the existing SFVAMC Fort Miley Campus that would affect off-site sensitive receptors, and there are no other odor sources in the vicinity that could affect on-site sensitive receptors. In addition, the Fort Miley area is windy, which reduces the chances of odor exposures, and none of the foreseeable future projects located within 2 miles of the existing SFVAMC Fort Miley Campus (Projects 1–8) would be considered major odor sources (see Table 3.2-6 in Section 3.2, “Air Quality”). It is unlikely that even foreseeable projects near the Campus (Cumulative Projects 1, 3, 4, and 9–12) would cause odor emissions. Therefore, operation of cumulative projects would not make a considerable contribution to localized odor emissions. This would be a minor cumulative impact.

Alternative 3

Criteria Pollutants

Construction

The geographic context for the analysis of potential cumulative construction-related air quality impacts includes locations in which the projects listed in Table 4-2 would be implemented after the year 2020. Only projects after 2020 are included in the geographic context, because the Alternative 3 analysis focuses only on long-term projects. Past, present, and probable future cumulative projects within these geographic and temporal contexts include all of the cumulative projects listed in Table 4-2 (thus, for the analysis, all 86 projects identified in Table 4-2).

Under Alternative 3, construction of approximately 170,000 square feet of building space in the Mission Bay area would occur in the long term, which is substantial relative to the other cumulative projects. However, construction would occur over a finite time period (2024–2027), and the emissions would occur only during this time period, unlike operational emissions, which would occur over the lifetime of the projects. Implementing Alternative 3 in combination with the aforementioned cumulative projects could result in an increase in regional, short-term construction-related emissions of criteria air pollutants and precursors.

The *de minimis* evaluation performed for Alternative 3 covers both project-specific and cumulative emissions by assessing the incremental contribution of long-term construction-related emissions of criteria pollutants to the region’s budget. Additionally, each project mentioned in the previous paragraph would have to comply with the local air quality management plan or the SIP. The *de minimis* thresholds would not be exceeded (even when overlapping construction and operational emissions were combined under the Alternative 3 scenario; see Table 3.2-24 in Section 3.2, “Air Quality”). In addition, the other, aforementioned projects would be required to meet applicable CEQA or NEPA thresholds. Therefore, construction of cumulative projects would not make a considerable contribution to cumulative emissions of criteria pollutants, and this would be a minor cumulative impact.

Operation

Under Alternative 3, operation of approximately 554,452 square feet would occur in the long term (the sum of short- and long-term construction), which is large relative to the other, aforementioned projects (see Table 4-2 for net totals). The *de minimis* evaluation performed for Alternative 3 covers both project-specific and cumulative emissions by assessing the incremental contribution of long-term operational emissions of criteria pollutants to the region’s budget. In addition, each project mentioned in the previous paragraph would have to comply with the local air quality management plan or the SIP.

The *de minimis* thresholds would not be exceeded (even when overlapping construction and operational emissions were combined under the Alternative 3 scenario; see Table 3.2-24 in Section 3.2, “Air Quality”). Therefore, operation of cumulative projects would not be considered to make a considerable contribution to cumulative impacts. This would be a minor cumulative impact.

Localized Carbon Monoxide Emissions

Operation

Implementing Alternative 3 in combination with all 86 cumulative projects listed in Table 4-2 could result in an increase in vehicle volumes at local intersections. Implementing Alternative 3 has the potential to add incremental operational CO emissions that could cause or contribute to an existing hotspot in the heavily trafficked Mission Bay area. When added to the operational CO emissions from cumulative projects listed in Table 4-2, it may be concluded that operation of cumulative projects could make a considerable contribution to existing or new CO hotspots, and this would be an adverse cumulative impact. Implementing Alternative 3 in combination with the aforementioned cumulative projects could result in an increase in regional, long-term operational emissions of criteria air pollutants and precursors.

There are no feasible mitigation measures to reduce future traffic volumes to which the potential new SFVAMC Mission Bay Campus would contribute. However, it should be noted that as vehicular emission rates continue to improve over time, CO concentrations would reasonably be anticipated to decrease as well, and CO hotspot formation is less likely in the long term.

Localized Emissions of Toxic Air Contaminants and Particulate Matter

Construction and Operation

Implementing Alternative 3 in combination with the cumulative projects listed in Table 4-2 could result in an increase in local TAC emissions. It is anticipated that cumulative projects in Table 4-2 that would be located more than 1,000 feet away from the site of Alternative 3 would not cumulatively contribute to the project's local TAC emissions. To determine the significance of cumulative localized impacts of TACs and PM_{2.5}, Bay Area Air Quality Management District thresholds were used. Exposure of sensitive receptors to TACs and PM_{2.5} would be considered cumulatively significant if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius of the fence line (or beyond, where appropriate) for a source or from the location of a receptor, plus the contribution from Alternative 3, would exceed the following:

- an excess cancer risk level of more than 100 in 1 million or a chronic hazard index greater than 10 for TACs; or
- 0.8 microgram per cubic meter annual average PM_{2.5}.

With respect to construction activities at the existing SFVAMC Fort Miley Campus, a detailed health risk assessment was conducted for Alternative 1 worst-case conditions. The assessment resulted in higher emissions of diesel particulate matter than for Alternative 3. Alternative 3 would result in fewer emissions than Alternatives 1 and 2; thus, health risk impacts associated with construction of Alternative 3 projects would be less than those for Alternative 1 or 2. As stated in Section 3.2, "Air Quality," of this EIS, localized construction emissions of TACs and PM_{2.5} under Alternative 1 or 2 projects would be minor with implementation of Mitigation Measures AIR-1 and AIR-2. Therefore, the impacts of localized operational emissions of TACs and PM_{2.5} under Alternative 3 projects also would be minor.

The exact location of Alternative 3 long-term projects at the potential new SFVAMC Mission Bay Campus is unknown; thus, the number of potential foreseeable projects listed in Table 4-2 within a 1,000-foot radius of the Mission Bay location is also unknown. Under Alternative 3, construction and operation of approximately 170,000 square feet of building space would occur in the long term, which is large relative to the other potential foreseeable projects (see Table 4-2 for net totals). Because the Mission Bay area is heavily trafficked, the impact of localized construction and operational emissions of TACs and PM_{2.5} under Alternative 3 projects would be potentially adverse. When considered with the many foreseeable projects listed in Table 4-2 (1–8, 17, 18, 20, 21, 26–28, and 30–86), it may be concluded that construction and operation of cumulative projects could make a considerable contribution to localized TAC and PM_{2.5} emissions and exposure of sensitive receptors to TAC and PM_{2.5} emissions (including patients at the Mission Bay hospital facilities and nearby residents). This would be a potentially adverse cumulative impact.

Any on-site or off-site stationary TAC sources would require permits, and would be subject to local air district review as well as CEQA and/or NEPA review; therefore, further mitigation would not be feasible or necessary for permitted sources. There are no feasible mitigation measures to reduce future traffic volumes to which the potential new SFVAMC Mission Bay Campus would contribute. The Mission Bay area is windy, and mobile TAC and PM_{2.5} emissions are anticipated to decrease in the future because of State and federal regulatory requirements.

Odors

Construction

Localized odor emissions during construction could occur near sensitive receptors during a 2-year period. However, these odors would be temporary, would occur during business hours during the construction period, and would disperse quickly given the wind in the area. In addition, because of the localized nature of construction-related odors and the distance to nearby cumulative projects, construction of Alternative 3 projects would not make a considerable contribution to localized odor emissions. This would be a minor cumulative impact.

The Mission Bay area is windy, and mobile-source TAC and PM_{2.5} emissions are anticipated to decrease in the future because of State and federal regulatory requirements, which would also reduce odors from construction-related diesel combustion.

Operation

Exposures of sensitive receptors to operational odor emissions under Alternative 3 projects would be potentially adverse. As described previously in Section 3.2, “Air Quality,” several existing odor sources and an existing odor complaint history related to the Mission Bay area could affect on-site sensitive receptors at the potential new SFVAMC Mission Bay Campus. Additionally, the potential new Campus has the potential to generate minor odors that could affect off-site sensitive receptors. Because the exact location of the potential new SFVAMC Mission Bay Campus in the Mission Bay area is unknown at this time, it would be speculative to estimate the effects of localized odor emissions on potential sensitive receptors and recommend mitigation/abatement measures to be incorporated into the facility design. However, any new odor sources permitted in the vicinity of the potential new Campus would be subject to odor control measures, and potential odors associated with medical

office use in general are considered minimal. Therefore, potential direct odor impacts would be minor. No indirect odor impacts are anticipated to occur.

No foreseeable future projects are located within 2 miles of the site of the potential new SFVAMC Mission Bay Campus (see the cumulative projects listed in Table 4-2) that, based on land use type, would be considered potential major odor sources. It is unlikely that even foreseeable projects close to the potential new Campus would cause substantial odor emissions. Furthermore and as noted above, the Mission Bay area is windy, and mobile-source TAC and PM_{2.5} emissions are anticipated to decrease in the future because of State and federal regulatory requirements, which would also reduce odors from construction-related diesel combustion. As a result, operation of Alternative 3 would not make a considerable contribution to odor impacts in the area. Impacts would be minor.

4.4.2 Cultural Resources

This section addresses cumulative effects on only archaeological resources and historic properties, because none of the other resource types included in VA's definition of cultural resources are known to exist in the study area. (See Section 3.4, "Cultural Resources," for further discussion of the presence of cultural resources.)

Alternatives 1 and 2

Archaeological Resources

Construction

The geographic context for the analysis of potential cumulative construction-related impacts for archaeological resources consists of areas near the existing SFVAMC Fort Miley Campus and the Campus itself. Based on the geographic area, time frame, and types of projects listed in Table 4-1, identified cumulative projects for archaeological resources include Cumulative Projects 4 (GGNRA General Management Plan) and 11 (Geothermal System). Both identified projects would involve ground-disturbing activities that could result in the discovery or damage of archaeological sites. Implementing short-term development could result in adverse impacts on archaeological resources. Therefore, the identified cumulative projects in addition to Alternative 1 or 2 could result in adverse cumulative impacts on archaeological resources if no mitigation measures were to be implemented for Alternative 1 or 2. There would be no cumulative impacts for the remaining projects in the table because they do not pertain to archaeological resources or are located outside the geographic context being considered for archaeological resources.

Implementing Mitigation Measure CR-1 identified in Section 3.4, "Cultural Resources," would reduce potentially adverse impacts of Alternative 1 or 2. Effects that could result from inadvertent damage or destruction of presently undocumented significant archaeological resources and human remains during construction would be minor, because site-specific research, documentation, avoidance, and treatment measures would be implemented as required under Section 106 of the National Historic Preservation Act. Therefore, the contribution of Alternative 1 or 2 to a potentially adverse cumulative impact would not be considerable, and this would be a minor cumulative impact.

Operation

None of the projects listed in Table 4-1 have the potential to disturb archaeological sites during the operational phase, because it is assumed that no ground-disturbing activities would occur after construction. Therefore, no operational cumulative impacts on archaeological resources would occur.

Historic Resources**Construction**

The geographic context for the analysis of potential cumulative construction-related impacts on historic resources includes those areas close to the existing SFVAMC Fort Miley Campus and the Campus itself. The time frame would include past, present, and probable future cumulative projects with a buildout date to 2027. The project type would be those projects that include nonarchaeological historic properties. Based on the geographic area, time frame, and type of projects listed in Table 4-1, Cumulative Projects 1–4 and 11–15¹⁰ are the identified projects included in this cumulative analysis for historic resources. Cumulative Projects 1–4 (*USS San Francisco* Memorial Parking Lot Renovation, Merrie Way Visitor Center, GGNRA Dog Management Plan, GGNRA General Management Plan), 11 (Geothermal System), 13 (North Slope Seismic/Geologic Stabilization), and 14 (Electrical System Upgrade Exterior Work) would not cause a cumulative impact on historic resources. Cumulative Project 4 (GGNRA General Management Plan) will likely be beneficial to historic resources, because part of the purpose of that plan is preservation and enhancement of historic structures and landscapes.

Cumulative Project 12 (Solar Photovoltaic System), which is ongoing at the SFVAMC Fort Miley Campus, has the potential to result in adverse effects on the SFVAMC Historic District. However, because the project involves only minor construction, there would be only a minor impact of the SFVAMC Historic District. Therefore, there would be a minor cumulative impact on historic resources.

Cumulative Project 15 (Mental Health Patient Parking Addition) required the construction of a parking garage adjacent to buildings that contribute to SFVAMC Historic District, which resulted in a visual intrusion to the SFVAMC Historic District's setting. Therefore, there would be a minor cumulative impact on historic resources.

Operation

None of the projects listed in Table 4-1 would be anticipated to alter historic structures during the operational phase, because it is assumed that no potential exists for alterations to historic structures after completion of the construction phase. Therefore, no operational cumulative impacts on historic resources would occur.

¹⁰ *USS San Francisco* Memorial Parking Lot Renovation, Merrie Way Visitor Center, GGNRA Dog Management Plan, GGNRA General Management Plan, Geothermal System, Solar Photovoltaic System, North Slope Seismic/Geologic Stabilization, Electrical System Upgrade Exterior Work, and Mental Health Patient Parking Addition.

Alternative 3

Archaeological Resources

Construction

The geographic context for the analysis of potential cumulative construction-related impacts for archaeological resources includes those areas near the Mission Bay area boundary for Alternative 3. Based on the geographic area, time frame (buildout date to 2027), and type of projects, all 86 cumulative projects listed in Table 4-2 are identified as cumulative projects for archaeological resources because these projects are located in an area that has a high potential for significant archaeological resources. The identified cumulative projects also involve ground-disturbing activities that could result in the discovery or damage of archaeological sites. In addition, implementing Alternative 3 could result in potentially adverse impacts on archaeological resources. Alternative 3, when considered with the cumulative projects listed in Table 4-2, could result in an adverse cumulative impact on archaeological resources.

Because Alternative 3 long-term projects in the Mission Bay area represent approximately 170,000 square feet of new development and the 86 cumulative projects listed in Table 4-2 represent more than 17.8 million square feet, Alternative 3 long-term projects would not constitute a considerable amount of the identified adverse cumulative impact. In addition, implementing Mitigation Measure CR-1 would help reduce the impact of inadvertent discoveries. Therefore, this would be a minor cumulative impact.

Operation

None of the projects listed in Table 4-2 have the potential to disturb archaeological sites during the operational phase because it is assumed that no ground-disturbing activities would occur after construction. Therefore, no cumulative impacts on archaeological resources would occur during the operational phase.

Historic Resources

Construction

The geographic context for the analysis of potential cumulative construction-related impacts on historic resources includes those areas close to the boundary for Alternative 3 in the Mission Bay area. The time frame would include past, present, and probable future cumulative projects with a buildout date to 2027. Based on the geographic area, time frame, and type of projects, all 86 cumulative projects listed in Table 4-2 are identified as cumulative projects for historic resources because they are located in an area that contains historic-era resources, some of which are likely historically significant. If projects are sited near or in place of historically significant buildings, constructing such projects may damage or alter those resources so that they no longer convey significance. For this reason, implementing Alternative 3 would be potentially adverse to historic resources.

Similarly, implementing the 86 cumulative projects listed in Table 4-2 would be potentially adverse to historic resources. Implementing Alternative 3 in addition to the identified cumulative projects would likely result in an adverse cumulative impact on historic resources. Because Alternative 3 long-term projects in the Mission Bay area represent approximately 170,000 square feet of new development and the 86 cumulative projects listed in

Table 4-2 represent more than 17.8 million square feet, Alternative 3 long-term projects would not constitute a considerable amount of the potentially adverse cumulative impact. In addition, implementing Mitigation Measure CR-1 would help reduce the impact of inadvertent discoveries. Therefore, this would be a minor cumulative impact.

Operation

None of the projects listed in Table 4-2 would disturb historic structures after construction. Therefore, no cumulative impacts on historic resources would occur during operation.

4.4.3 Greenhouse Gas Emissions and Climate Change

Alternatives 1 and 2

Greenhouse Gas Emissions

Because greenhouse gas (GHG) emissions are global air emissions with an atmospheric residence time of at least 200 years, construction-related and operational GHG emissions from most projects listed in Table 4-1 are considered in this cumulative analysis. Cumulative Project 3 (GGNRA Dog Management Plan) would not apply to this analysis because allowing on-leash dogs on existing NPS GGNRA trails near the existing SFVAMC Fort Miley Campus would not result in construction-related or operational GHG emissions. In addition, Cumulative Project 6 (DuPont Tennis Courts Restroom Renovation) would not apply because no construction GHG emissions and no net new operational GHG emissions would be associated with a change in the commercial uses of an existing building.

Construction

For this analysis, identified projects from Table 4-1 include Cumulative Projects 4 (GGNRA General Management Plan), 7 (Lincoln Park Steps Improvement), and 10 (5400 Geary Boulevard).

Construction of Alternative 1 or 2 projects in conjunction with the identified cumulative projects would result in cumulative emissions of metric tons of carbon dioxide equivalent (MTCO_{2e}) between 2013 and 2027. However, these construction-related GHG emissions would be spread out over a 14-year time period (2013–2027). In addition, total construction-related GHG emissions for Alternative 1 or 2 (i.e., 6,948 MTCO_{2e} or 8,190 MTCO_{2e}, respectively) would be below the 25,000 MTCO_{2e} per year threshold. Therefore, construction of Alternative 1 or 2 projects would not make a considerable contribution to cumulative GHG emissions and global climate change, and this would be a minor cumulative impact.

Operation

For this analysis, identified projects from Table 4-1 include Cumulative Projects 1–2, 4–5, 7–12, and 14.¹¹

¹¹ USS San Francisco Memorial Parking Lot Renovation, Merrie Way Visitor Center, GGNRA General Management Plan, Cabrillo Playground Renovation, Lincoln Park Steps Improvement, Albertsons Reuse, Safeway Redevelopment, 5400 Geary Boulevard, Geothermal System, Solar Photovoltaic System, and Electrical System Upgrade Exterior Work.

Operation of the LRDP facilities under Alternative 1 in conjunction with the identified projects would generate cumulative emissions of carbon dioxide equivalent (CO₂e) each year once buildings become operational. These cumulative operational emissions of GHGs at full buildout of Alternative 1 or 2 (i.e., 4,711 MTCO₂e per year without measures from the *Department of Veteran Affairs Strategic Sustainability Performance Plan* [VA SSPP]) would be below 25,000 MTCO₂e per year; therefore, implementing Alternative 1 or 2 would not make a considerable contribution to cumulative GHG emissions and global climate change. This would be a minor cumulative impact.

Impacts of Climate Change Construction

Because impacts of climate change are operational, no cumulative impacts related to sea level rise, extreme heat events, or wildfire threat would be associated with the construction of cumulative projects.

Operation

The geographic context is the Pacific Ocean near San Francisco, and the temporal context is through 2100. Sea level rise for the Pacific Ocean near San Francisco is predicted to be up to 24 inches by 2050 and up to 66 inches by 2100 (NRC, 2012).

Past, present, and probable future cumulative projects within these geographic and temporal contexts include the operation of some of the cumulative projects listed in Table 4-1. Cumulative Projects 5 (Cabrillo Playground Renovation), 6 (DuPont Tennis Courts Restroom Renovation), 8 (Albertsons Reuse), 9 (Safeway Redevelopment), 10 (5400 Geary Boulevard), 17 (Westside Recycled Water), and 18 (Emergency Firefighting Water System) would not apply to this analysis, because these projects are or would be located at least 2,000 feet inland from the Pacific Ocean, are not located within or near a forested area, nor do they contain or involve patient-care uses. Therefore, for this analysis, the projects identified in Table 4-1 include Cumulative Projects 1–4, 7, 11–16, and 19.¹²

Based on sea-level-rise predictions of up to 24 inches by 2050 and up to 66 inches by 2100, sea level rise could cause flooding in some of the coastal areas of San Francisco. However, the identified cumulative projects are at higher elevations than the Pacific Ocean (approximately 75–320 feet above mean sea level versus 0 feet above mean sea level), and the SFVAMC Fort Miley Campus is situated approximately 300–350 feet above mean sea level. Thus, there would be no cumulative climate change–related sea level rise impacts to which Alternative 1 or 2 would contribute.

Cumulative SFVAMC and NPS projects could experience a cumulative climate change–related wildfire risk impact given their location within or proximate to the forested NPS lands. Therefore, the identified cumulative projects could be unprepared for environmental changes resulting from climate change, and thus could result in harm to persons or property or degradation of natural resources or ecosystems, representing a potentially adverse

¹² *USS San Francisco Memorial Parking Lot Renovation, Merrie Way Visitor Center, GGNRA Dog Management Plan, GGNRA General Management Plan, Lincoln Park Steps Improvement, Geothermal System, Solar Photovoltaic System, North Slope Seismic/Geologic Stabilization, Electrical System Upgrade Exterior Work, Mental Health Patient Parking Addition, Baker Beach Green Streets, and Wastewater Enterprise Renewal and Replacement Program.*

cumulative impact. However, with implementation of LRDP-specific mitigation measures, implementing Alternative 1 or 2 would not contribute considerably to this potentially adverse cumulative impact.

Alternative 3

Greenhouse Gas Emissions

GHG emissions are global air emissions with an atmospheric residence time of at least 200 years. All of the cumulative projects listed in Table 4-2 fall within these geographical and temporal contexts. Therefore, for this analysis, identified cumulative projects include all 86 cumulative projects listed in Table 4-2.

Construction

Construction of Alternative 3 long-term projects in conjunction with the identified cumulative projects would generate cumulative emissions of CO₂e between 2020 and 2027. Even though these construction-related GHG emissions would be spread out over a 7-year time period, this total still could represent a large quantity of GHG emissions. Therefore, construction of cumulative projects would make a considerable contribution to cumulative GHG emissions and global climate change, and this would be an adverse cumulative impact.

However, the contribution of approximately 1,019 MTCO₂e by Alternative 3 long-term projects in the Mission Bay area to the total quantity of cumulative construction-related GHG emissions would not be considerable. Therefore, construction of Alternative 3 long-term projects would represent a minor contribution to this cumulative impact.

Operation

Operation of LRDP facilities under Alternative 3 long-term projects in conjunction with the identified cumulative projects would generate cumulative emissions of CO₂e each year by 2040. Because it is anticipated that cumulative operational GHG emissions would exceed 25,000 MTCO₂e per year, implementing cumulative projects would make a considerable contribution to cumulative GHG emissions and global climate change. This would be an adverse cumulative impact.

However, under Alternative 3 long-term projects, the contribution of approximately 5,014 MTCO₂e per year without VA SSPP measures to the total quantity of cumulative operational GHG emissions would not be considerable. Therefore, operation of the Alternative 3 long-term projects would represent a minor contribution to this cumulative impact.

Impacts of Climate Change

Construction

Because impacts of climate change are operational, no cumulative impacts related to sea level rise, extreme heat events, or wildfire threat would be associated with the construction of cumulative projects.

Operation

The geographic context is the San Francisco Bay near San Francisco, and the temporal context is through 2100. Sea level rise for the San Francisco Bay near San Francisco is predicted to be up to 24 inches by 2050 and up to 66 inches by 2100 (NRC, 2012).

Past, present, and probable future cumulative projects within these geographic and temporal contexts include the operation of some of the cumulative projects listed in Table 4-2. Many cumulative projects—SFRPD Projects 19–23, SF Port Projects 24–26, SF Planning Projects 28, 30, 33, 35–36, 38, 40–48, and 50–80, and SFPUC Projects 81–85—would not apply to this analysis, because these projects are or would be located at least 2,000 feet inland from San Francisco Bay, are not located within or near a forested area, nor contain or would involve patient-care uses. Therefore, for this analysis, identified cumulative projects from Table 4-2 include City and County of San Francisco as Successor to SF Redevelopment Projects 1–6, UCSF Projects 7–17, SFRPD Project 18, SF Planning Projects 29, 31–32, 34, 37, 39, and 49, and Transbay Joint Powers Authority Project 86.

Based on sea-level-rise predictions of 11 inches by 2050 and 36 inches by 2100, sea level rise could cause flooding in some of the coastal areas of San Francisco. Tidal flooding issues currently exist in the Mission Bay area and such flooding issues could be exacerbated by sea level rise. The potential new identified cumulative projects would be located on land that was previously marshland and would be vulnerable to sea level rise, particularly in combination with potential storm surges and/or extreme rainfall events by the middle and end of the century. This would represent an adverse cumulative impact related to sea level rise.

However, as part of construction of VA facilities at the potential new SFVAMC Mission Bay Campus, the ground elevation would be raised to a level that would avoid sea level rise–related inundation of VA structures and of the roadways and infrastructure that would serve the new facilities. In addition, VA facilities would be thoroughly assessed as a part of the design and approval process to satisfy building code and geotechnical requirements. Furthermore, a project-level environmental review would be conducted in the future when more specific project details are available. Thus, no climate change–related sea level rise impact would occur at the potential new SFVAMC Mission Bay Campus. Therefore, operation of the Alternative 3 long-term projects would not contribute to this cumulative impact.

4.4.4 Noise and Vibration

Alternatives 1 and 2

Noise

Construction

The geographic context for the analysis of cumulative noise impacts varies based on the type of noise impact being analyzed. For construction and stationary-source noise impacts, only the area around a development site (in this case, the existing SFVAMC Fort Miley Campus or potential new SFVAMC Mission Bay Campus) would be included. For example, construction noise dissipates/attenuates quickly as the distance between the construction site and the receptor increases. As a result, only those projects within 1,000 feet of the existing Campus or the site of the potential new Campus are considered for the analysis of cumulative construction noise impacts. Past,

present, and probable future cumulative projects within these geographic and temporal contexts include the construction of most cumulative projects listed in Table 4-1. As indicated in Table 4-1, Cumulative Projects 1–2, 5, 8, 10–11, and 13–15¹³ were all completed by 2014. Cumulative Project 3 (GGNRA Dog Management Plan) would not apply to this analysis, because allowing on-leash dogs on existing NPS GGNRA trails near the existing SFVAMC Fort Miley Campus would not result in construction-related noise impacts. In addition, Cumulative Projects 6 (DuPont Tennis Courts Restroom Renovation), 7 (Lincoln Park Steps Improvement), and 16–19 (Baker Beach Green Streets, Westside Recycled Water, Emergency Firefighting Water System Seismic Upgrades, and Wastewater Enterprise Renewal and Replacement Program) would be located more than 1,000 feet from the Campus. Therefore, potential construction noise from Alternative 1 or 2 would not be considered cumulatively considerable with these projects because of the distance between sources. Therefore, for this analysis, identified projects (within 1,000 feet from the Campus) from Table 4-1 include Cumulative Projects 4 (GGNRA General Management Plan) and 12 (Solar Photovoltaic System).

Cumulative Project 4 would be located down-gradient from the existing SFVAMC Fort Miley Campus. The use of heavy equipment during construction of Cumulative Project 4 is anticipated to be minor and likely limited to one or two pieces of heavy construction equipment (e.g., backhoe/loader). Any concurrent construction activities that could result in cumulative noise increases would be limited to the northern portion of the existing Campus and portions of Lincoln Park located between Cumulative Project 4 and the existing Campus. Therefore, off-site residential structures located south of the existing Campus would not be exposed to potential cumulative construction noise levels. Construction activities at and around historic structures associated with Cumulative Project 4 would likely limit the number of visitors to Lincoln Park in that area.

Cumulative Project 12 involves installing a solar photovoltaic system at rooftop and parking structures on the SFVAMC Fort Miley Campus. Installation of the solar photovoltaic system would likely not require the use of heavy construction equipment (e.g., large excavator or bulldozer) and would likely be limited to one or two pieces of construction equipment (e.g., truck-mounted crane or backhoe). Any concurrent construction activities that could result in cumulative noise increases would be limited to the interior of the existing Campus. Therefore, cumulative noise impacts on the off-site residential structures would be minor. Furthermore, intervening terrain would limit the potential cumulative noise exposure to park visitors.

Combined with implementation of Mitigation Measures NOI-1 through NOI-3, which would reduce construction-related noise for construction, equipment, and worker vehicles, in addition to compliance with VA Specification Section 015719, “Temporary Environmental Controls,” Alternatives 1 and 2 would not make a cumulatively considerable contribution to a cumulative construction impact. Therefore, cumulative construction impacts associated with Alternative 1 or 2 would be minor.

Operation

The geographic context for the analysis of cumulative operational mobile-source (i.e., roadway) noise impacts is defined as the immediate area surrounding the roadways that would be affected by implementation of a particular Alternative, as well as cumulative development. The potential cumulative operational impacts related to roadway

¹³ USS San Francisco Memorial Parking Lot Renovation, Merrie Way Visitor Center, Cabrillo Playground Renovation, Albertsons Reuse, 5400 Geary Boulevard, Geothermal System, North Slope Seismic/Geologic Stabilization, Electrical System Upgrade Exterior Work, and Mental Health Patient Parking Addition.

noise were analyzed based on the traffic condition at the year 2040, which includes both regional growth and the cumulative projects and EIS Alternatives.

Past, present, and probable future cumulative projects within the geographic and temporal contexts identified at the beginning of this section include the operation of the cumulative projects listed in Table 4-1. None of the cumulative projects identified in Table 4-1 are located within 1,000 feet of the existing SFVAMC Fort Miley Campus, nor would they include unique or substantial stationary noise sources beyond existing conditions. Therefore, cumulative impacts related to stationary-source noise would not occur.

With respect to operational mobile-source noise, the 19 cumulative projects listed in Table 4-1 could contribute additional vehicle trips to the local roadway network in the vicinity of the SFVAMC Fort Miley Campus. Those projects are therefore included within the geographic and temporal contexts for cumulative impacts of Alternative 1 or 2.

To examine the potential cumulative effects of traffic increases in the vicinity of the existing SFVAMC Fort Miley Campus, traffic noise levels associated with the Campus were calculated for nearby roadway segments. Traffic volumes for each study segment were derived from p.m. peak intersection turning movements (see Section 3.13, “Transportation, Traffic, Circulation, and Parking”) using a K Factor of 10 to compute the average daily trips on roadway segments. (A K Factor is a multiplication factor used to compute average daily traffic.) Vehicle speeds and truck volumes on local roadways were determined based on field observations conducted on and around the existing Campus.

Table 4-4 summarizes the modeled traffic noise levels at 50 feet from the centerline of affected roadway segments near the Campus. The modeling found that the largest potential change in ambient roadway noise levels under cumulative (2040) conditions would occur along 42nd Avenue between Clement Street and Point Lobos Avenue. The change in ambient roadway noise levels along that segment would be approximately 2.1 A-weighted decibels (dBA) day-night average sound level (L_{dn}), less than the threshold of 5.0 dBA for future roadway noise levels (applicable where the existing condition is less than 60 dBA L_{dn}).

Table 4-4: Predicted Cumulative Future Traffic Noise Levels (Alternative 1 or 2)

Roadway	Segment		L_{dn} at 50 Feet, dBA			
	From	To	Existing	Cumulative (2035) Conditions	Net Change	Substantial Increase?
Clement Street	43rd Avenue	42nd Avenue	62.0	63.1	1.1	No
Clement Street	42nd Avenue	34th Avenue	63.3	64.4	1.1	No
Clement Street	43rd Avenue	48th Avenue	60.7	61.6	0.9	No
43rd Avenue	Clement Street	Point Lobos Avenue	60.7	62.0	1.3	No
42nd Avenue	Clement Street	Point Lobos Avenue	57.5	59.6	2.1	No

Notes: dBA = A-weighted decibels; L_{dn} = day-night average noise level

Traffic noise levels are predicted at a standard distance of 50 feet from the roadway centerline and do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: Data modeled by AECOM in 2014.

The increase in daily vehicle operations at the existing SFVAMC Fort Miley Campus as a result of implementation of Alternative 1 or 2 would result in a minor cumulative impact on ambient traffic noise along local roadways.

Vibration

Construction

Past, present, and probable future cumulative projects within the geographic and temporal contexts identified at the beginning of this section include the construction of cumulative projects listed in Table 4-1. Groundborne vibration attenuates rapidly with distance. The potential vibration impacts with respect to building damage (e.g., a threshold of 0.12 inch per second peak particle velocity for older buildings) are generally limited to buildings and structures located close to the construction activities (with heavy construction equipment), i.e., within 20 feet. With respect to potential human annoyance (e.g., 80 vibration decibels), impacts are generally limited to typical heavy construction equipment (e.g., large bulldozer) operating within 50 feet of the affected receptors.

As described above, most of the cumulative projects were completed by 2014. The two identified projects (within 1,000 feet of the SFVAMC Fort Miley Campus) are Cumulative Projects 4 (GGNRA General Management Plan) and 12 (Solar Photovoltaic System). Cumulative Project 4 is located approximately 1,000 feet from the Campus. Therefore, there would not be a potential cumulative vibration impact from construction activities of Alternative 1 or 2 projects together with Cumulative Project 4. As described above, Cumulative Project 12 would likely not require the use of heavy construction equipment (e.g., large excavator or bulldozer). Therefore, potential vibration impacts from concurrent construction activities would occur only within 50 feet of multiple heavy construction equipment. Off-site receptors would be located more than 50 feet from the construction activities for Cumulative Project 12. Therefore, construction vibration from Alternative 1 or 2 would not be considered cumulatively considerable. Impacts would be minor.

Operation

Past, present, and probable future cumulative projects within the geographic and temporal contexts identified at the beginning of this section include the operation of the 19 cumulative projects listed in Table 4-1. As noted in the discussion of project impacts in Section 3.10, "Noise and Vibration," the potential for operational vibration impacts is limited to areas subject to substantial heavy truck traffic or rail operations, neither of which would occur in the area of the existing SFVAMC Fort Miley Campus. Therefore, the potential for cumulative operational vibration impacts near the existing SFVAMC Fort Miley Campus is considered minimal. Impacts would be minor.

Alternative 3

Noise

Construction

Cumulative impacts related to construction activities under Alternative 3 short- and long-term projects at the existing SFVAMC Fort Miley Campus would be the same as those identified above for Alternatives 1 and 2.

Noise is a site-specific impact, and a specific site in the Mission Bay area has not been identified for the potential new SFVAMC Mission Bay Campus under Alternative 3; therefore, it is not possible to determine which of the 86 cumulative projects listed in Table 4-2 should be evaluated in conjunction with Alternative 3 to determine cumulative construction noise impacts. Nonetheless, future development of the potential new SFVAMC Mission Bay Campus would likely expose some receptors to elevated noise levels during construction.

To achieve a substantial cumulative effect in terms of construction noise levels, an additional source of high levels of construction noise would need to be close to a noise receptor. Construction activities within the cumulative context would be subject to the requirements of the San Francisco Noise Control Ordinance and would not occur during potentially noise-sensitive hours, unless a special permit issued by the City allows such activities. However, depending on the location of the cumulative project(s) in relation to the potential new Campus and any nearby receptors, cumulative noise levels could exceed City standards.

Because the exact location of the potential new SFVAMC Mission Bay Campus and a detailed project design are unknown at this time, this cumulative impact that would result from Alternative 3 long-term projects would be potentially adverse.

Operation

Because a specific site in the Mission Bay area has not been identified for the potential new SFVAMC Mission Bay Campus under Alternative 3, it is not possible to determine which of the 86 cumulative projects from Table 4-2 should be evaluated in conjunction with Alternative 3 long-term projects to determine cumulative construction noise impacts. Based on the anticipated square footage of the potential new Campus under this Alternative, the potential contribution of Alternative 3 long-term projects to roadway noise levels would be potentially cumulatively considerable and could contribute to a substantial permanent increase in roadway noise levels. The exact location of the potential new SFVAMC Mission Bay Campus and a detailed project design are unknown at this time and would require further evaluation when a location in the Mission Bay area is identified; therefore, this cumulative impact that would result from Alternative 3 long-term projects would be potentially adverse.

Vibration

Construction

Cumulative impacts related to construction activities under Alternative 3 short-term projects at the existing SFVAMC Fort Miley Campus would be the same as those identified above for Alternatives 1 and 2.

Because a specific site in the Mission Bay area has not been identified for the potential new SFVAMC Mission Bay Campus under Alternative 3, it is not possible to determine which cumulative projects from Table 4-2 should be evaluated in conjunction with Alternative 3 long-term projects to determine cumulative construction vibration impacts. As noted above for the evaluation of cumulative construction noise impacts, the potential for cumulative construction vibration impacts would depend on the location of a cumulative project or projects from Table 4-2 and a sensitive receptor relative to the potential new SFVAMC Mission Bay Campus. For example, should a cumulative project and the potential new Campus be located within 100 feet of a residential structure, vibration levels could exceed the Federal Transit Administration's threshold for human annoyance and impacts would be

adverse. The exact location of the potential new SFVAMC Mission Bay Campus and a detailed project design are unknown at this time and would require further evaluation when a location in the Mission Bay area is identified; therefore, this cumulative impact that would result from Alternative 3 long-term projects would be potentially adverse.

Operation

Past, present, and probable future cumulative projects within the geographic and temporal contexts identified at the beginning of this section include the operation of the cumulative projects listed in Table 4-1. As noted in the impact discussion in Section 3.10, “Noise and Vibration,” the potential for operational vibration impacts is limited to areas subject to substantial heavy-truck traffic or rail operations. Several of the cumulative projects listed in Table 4-2 could generate substantial heavy-truck and/or rail operations; however, the potential new SFVAMC Mission Bay Campus and facilities proposed at the existing SFVAMC Fort Miley Campus under Alternative 3 long-term projects would generate minimal truck traffic. Therefore, impacts of Alternative 3 long-term projects would not be considered cumulatively considerable with respect to operational vibration, and impacts would be minor.

4.4.5 Transportation, Traffic, and Parking Alternative 1

Traffic, Transit, and Parking

Construction

Past, present, and probable future cumulative projects within these geographic area shown in in Figure 4-1 and temporal contexts include the construction of the cumulative projects listed in Table 4-1 (except Cumulative Project 3 [GGNRA Dog Management Plan]). The cumulative construction projects located near the existing SFVAMC Fort Miley Campus (Cumulative Projects 4 [GGNRA General Management Plan], 7 [Lincoln Park Steps Improvement], and 10 [5400 Geary Boulevard]) either are located within the GGNRA or the existing Campus or involve renovating existing facilities and/or structures. As a result, the potential for cumulative traffic delays, impacts on transit circulation, and loss of local on-street parking spaces could occur. As stated in Section 3.13, “Transportation, Traffic, Circulation, and Parking,” construction-related impacts related to traffic, transit, and parking would not be adverse; however, implementation of Management Measures TRANS-1 through TRANS-3 would further ensure that construction-related effects would be minor. Cumulative Project 7 is located more than 4,000 feet from the limits of the existing SFVAMC Fort Miley Campus; based on this distance from the Campus, impacts related to this project would not be considered cumulative with the construction traffic impacts of Alternative 1. Cumulative projects also would be required to coordinate construction activities through SFMTA and follow the regulations set forth in “The Blue Book.” Therefore, cumulative traffic, transit, and parking impacts would be minor.

Operation

The cumulative analysis for transportation and parking evaluates conditions in Year 2040, including both short-term and long-term projects under Alternatives 1, 2, and 3; growth associated with planned and proposed future development; changes to the transportation network in the study area; and background growth in travel demand in San Francisco and the region.

Like the short- and long-term analyses, the cumulative analysis assumes a growth rate of 0.5 percent per year for background traffic for all study intersections. San Francisco Municipal Railway (Muni) ridership growth is calculated using the same methodology discussed under “Assessment Methods” in Section 3.13, “Transportation, Traffic, Circulation, and Parking.”

The cumulative analysis assumes the same changes to the transportation network assumed in the analyses for short-term and long-term projects, as discussed in Section 3.13.

Past, present, and probable future cumulative projects within the same geographical and temporal contexts as Alternative 1 include the 19 cumulative projects listed in Table 4-1.

Growth in traffic as a result of planned development both within and outside of the SFVAMC Fort Miley Campus area was used to develop traffic volumes for 2040 Cumulative Alternative 1 Conditions. The resulting traffic volumes and levels of service (LOS) at the study intersections are summarized in Table 4-5 and illustrated in Figure 4-3.

Table 4-5: Intersection Levels of Service—2040 Cumulative Alternative 1 Conditions (Weekday P.M. Peak Hour)

	Intersection	Control Type	2040 Cumulative Conditions (No Action)		2040 Cumulative Alternative 1 Conditions	
			LOS	Delay ¹	LOS	Delay ¹
1	34th Avenue/Clement Street	All-way Stop	B	14.1	C	17.0
2	42nd Avenue/Clement Street	All-way Stop	B	12.7	C	16.9
3	43rd Avenue/Clement Street	All-way Stop	B	14.0	C	20.3
4	42nd Avenue/Point Lobos Avenue	All-way Stop	C	15.3	C	18.4
5	43rd Avenue/Point Lobos Avenue	All-way Stop	C	19.0	C	23.3

Notes: LOS = level of service

¹ Delay presented in seconds per vehicle.

Source: VA, 2014.

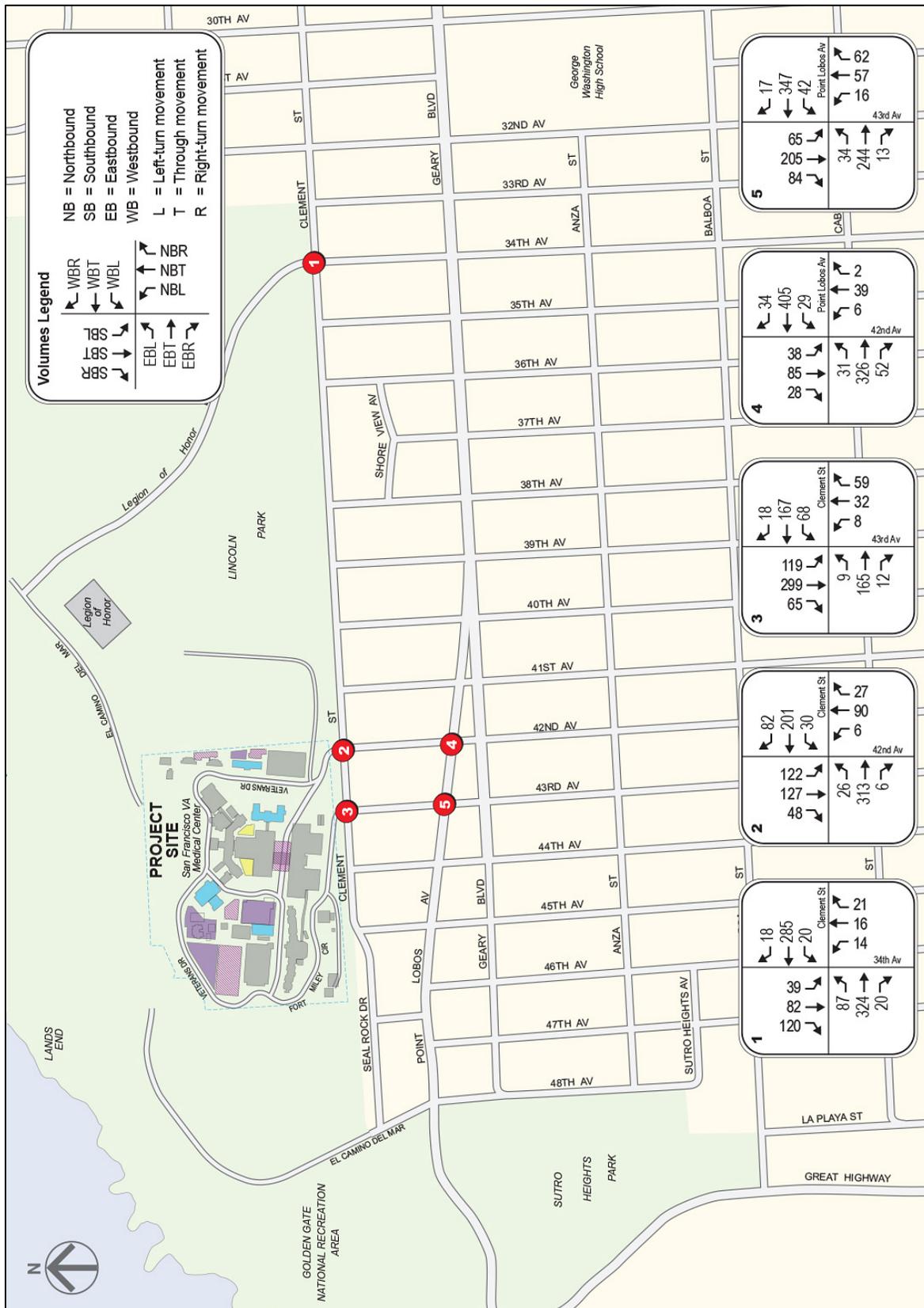
As shown in Table 4-5, under 2040 Cumulative Alternative 1 Conditions, all five study intersections are projected to operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour. Thus, implementing Alternative 1 would not result in adverse cumulative impacts on any study intersections.

LOS results for the study roadway segments are summarized in Table 4-6.

As shown in Table 4-6, both study roadway segments are projected to operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour. Thus, implementing Alternative 1 would not result in adverse cumulative impacts along any study roadway segments.

As shown in Table 3.13-12 in Section 3.13, “Transportation, Traffic, Circulation, and Parking,” Alternative 1 would generate a total of approximately 215 transit trips (91 inbound to and 124 outbound from the SFVAMC Fort Miley Campus) during the weekday p.m. peak hour.

Muni ridership and capacity under 2040 Cumulative Alternative 1 Conditions are summarized in Table 4-7.



Source: VA, 2014.

Figure 4-3: Intersection Traffic Volumes—2040 Cumulative Alternative 1 Conditions

Table 4-6: Roadway Segment Levels of Service—2040 Cumulative Alternative 1 Conditions (Weekday P.M. Peak Hour)

	Intersection	Direction	2040 Cumulative Conditions (No Action)		2040 Cumulative Alternative 1 Conditions	
			LOS	v/c Ratio	LOS	v/c Ratio
1	42nd Avenue/Clement Street <i>Between Clement Street and Point Lobos Avenue</i>	Northbound	A	0.19	A	0.27
		Southbound	A	0.28	B	0.36
2	43rd Avenue/Clement Street <i>Between Clement Street and Point Lobos Avenue</i>	Northbound	A	0.19	A	0.24
		Southbound	D	0.73	D	0.84

Notes: LOS = level of service; v/c = volume-to-capacity
Source: VA, 2014.

Table 4-7: San Francisco Municipal Railway Ridership and Capacity—2040 Cumulative Alternative 1 Conditions (Weekday P.M. Peak Hour)

Direction	Existing Conditions			2040 Cumulative Conditions (No Action)			2040 Cumulative Alternative 1 Conditions		
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization
Inbound	908	1,777	51%	1,661	2,820	59%	1,785	2,820	63%
Outbound	1,814	2,528	72%	3,570	3,826	93%	3,661	3,826	96%

Notes:
Ridership data based on conditions at the maximum load point for each line.
Sources: SFMTA, 2011; VA, 2014.

As discussed for the Alternative 1 short-term projects, the Campus's location at the outer end of the Geary Corridor means that the commute direction for the project constitutes the "reverse commute" direction. Trips heading inbound to the Campus would take outbound transit services in the Geary Corridor, and trips heading outbound from the Campus would take inbound transit services in the Geary Corridor.

In particular, outbound transit service in the Geary Corridor is expected to operate at 93 percent capacity utilization under 2040 Cumulative Conditions (No Action), exceeding the 85 percent threshold as shown in Table 4-7. Adding up to 91 passengers as a result of Alternative 1 would increase capacity utilization to 96 percent. However, this added ridership would contribute only 3.7 percent of the total ridership in the corridor, which would not represent a considerable contribution to the total ridership. In the opposite direction, inbound transit service in the Geary Corridor is expected to operate at only 59 percent capacity utilization during the weekday p.m. peak hour. Even with the addition of up to 124 new transit riders generated by Alternative 1, capacity utilization would still increase to only 63 percent, well below the 85 percent threshold.

Similar to 2020 short-term Alternative 1 Conditions, it is likely that only some of these 124 new transit riders leaving the Campus would choose to take Muni buses in the Geary Corridor. Many of these riders would be expected to use the commuter shuttle services provided by SFVAMC, so that the actual increase in capacity utilization on inbound buses in the Geary Corridor is expected to be less than as described above. Overall,

implementing Alternative 1 is not expected to result in or make a considerable contribution to an operational impact on Muni capacity in either direction in the Geary Corridor.

Parking conditions are expected to be similar to 2027 Long-Term Alternative 1 Conditions, as discussed in Section 3.13, “Transportation, Traffic, Circulation, and Parking.” Thus, cumulative parking impacts would be minor.

Therefore, the potential cumulative impacts related to traffic, transit, and parking would be minor.

Alternative 2

As discussed in Section 3.13, “Transportation, Traffic, Circulation, and Parking,” Alternative 2 is identical to Alternative 1 in terms of the total amount and type of operational space proposed, but it would involve different phasing and implementation schedules for some of the projects, resulting in a different construction schedule. Thus, the evaluation of transportation impacts distinguishes between these two Alternatives only when discussing construction-related transportation impacts. As under Alternative 1, however, impacts related to the identified cumulative projects listed in Table 4-1 would be minor because cumulative projects would be required to coordinate construction activities through SFMTA and follow the regulations set forth in “The Blue Book.” As a result, cumulative traffic, transit, and parking impacts would be minor.

Alternative 3

The discussion below addresses the cumulative impacts of Alternative 3 long-term projects at the potential new SFVAMC Mission Bay Campus. For the analysis of impacts of Alternative 3 short-term projects at the existing SFVAMC Fort Miley Campus, see the discussion of Alternatives 1 and 2 above.

Traffic, Transit, and Parking

Construction

Because the potential new SFVAMC Mission Bay Campus would be located in the Mission Bay area, which is currently undergoing redevelopment, there may be construction activities around the potential new Campus in the cumulative time frame. Further analysis of construction impacts in the cumulative time frame would be required once a specific location for the potential new Campus has been determined. Thus, this cumulative impact would be potentially adverse.

Operation

Without knowing where the potential new SFVAMC Mission Bay Campus would be located under Alternative 3, it is not possible to determine which cumulative projects listed in Table 4-2 should be evaluated in conjunction with Alternative 3 long-term projects for cumulative traffic impacts at the potential new SFVAMC Mission Bay Campus. Nonetheless, based on the level of development anticipated under Alternative 3 long-term projects, the potential contribution of traffic generated by this Alternative to the local transportation network could be substantial in relation to available capacity. When taken into consideration with the projects listed in Table 4-2, potential decreases in intersection LOS and other traffic-related impacts could be exacerbated. As a result,

impacts could be adverse. Because the location of the potential new SFVAMC Mission Bay Campus is currently undetermined, further quantitative analysis would be required once a specific location and site plan for the potential new Campus is identified. Thus, this cumulative impact would be potentially adverse.

Growth in traffic as a result of planned development both within and outside of the SFVAMC Fort Miley Campus area was used to develop traffic volumes for 2040 Cumulative Alternative 3 Conditions. The resulting traffic volumes and LOS at the study intersections are summarized in Table 4-8 and illustrated in Figure 4-4.

Table 4-8: Intersection Levels of Service—2040 Cumulative Alternative 3 Conditions (Weekday P.M. Peak Hour)

	Intersection	Control Type	2040 Cumulative Conditions (No Action)		2040 Cumulative Alternative 3 Conditions	
			LOS	Delay ¹	LOS	Delay ¹
1	34th Avenue/Clement Street	All-way Stop	B	14.1	B	14.7
2	42nd Avenue/Clement Street	All-way Stop	B	12.7	B	13.2
3	43rd Avenue/Clement Street	All-way Stop	B	14.0	C	16.1
4	42nd Avenue/Point Lobos Avenue	All-way Stop	C	15.3	C	15.6
5	43rd Avenue/Point Lobos Avenue	All-way Stop	C	19.0	C	20.4

Notes:

LOS = level of service

¹ Delay presented in seconds per vehicle.

Source: VA, 2014.

As shown in Table 4-8, under 2040 Cumulative Alternative 3 Conditions, all five study intersections are projected to operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour. Thus, Alternative 3 would not result in adverse cumulative impacts on any study intersections.

LOS results for the study roadway segments are summarized in Table 4-9.

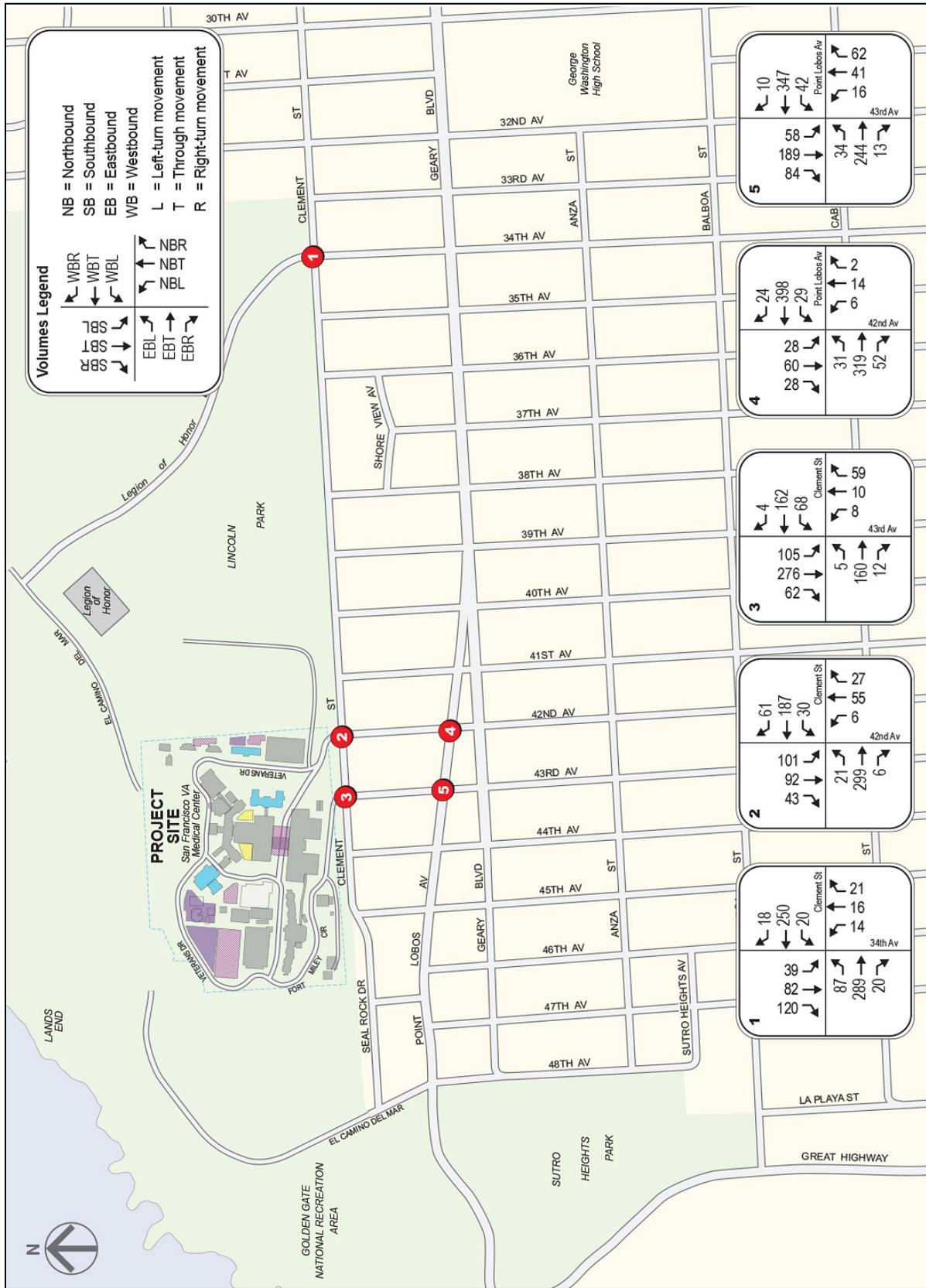
Table 4-9: Roadway Segment Levels of Service—2040 Cumulative Alternative 3 Conditions (Weekday P.M. Peak Hour)

	Intersection	Direction	2040 Cumulative Conditions (No Action)		2040 Cumulative Alternative 3 Conditions	
			LOS	v/c Ratio	LOS	v/c Ratio
1	42nd Avenue/Clement Street <i>Between Clement Street and Point Lobos Avenue</i>	Northbound	A	0.19	A	0.19
		Southbound	A	0.28	B	0.28
2	43rd Avenue/Clement Street <i>Between Clement Street and Point Lobos Avenue</i>	Northbound	A	0.19	A	0.19
		Southbound	D	0.73	D	0.79

Notes:

LOS = level of service; v/c = volume-to-capacity

Source: VA, 2014.



Source: VA, 2014.

Figure 4-4: Intersection Traffic Volumes—2040 Cumulative Alternative 3 Conditions

As discussed in Section 3.13, impacts on transit operations would be minor under Alternative 3. Because Alternative 3 would generate fewer new transit trips in either direction than Alternative 1 or 2, no impacts on transit capacity are expected under Alternative 3. Alternative 3 is not expected to result in an adverse cumulative impact on transit capacity at the Campus. As discussed above, further analysis of transit impacts at the potential new SFVAMC Mission Bay Campus would be required once a specific location for the potential new Campus has been determined.

Both study roadway segments are projected to operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour (Table 4-9). Thus, implementing Alternative 3 would not result in adverse cumulative impacts along any study roadway segments.

Further analysis of traffic impacts at the potential new SFVAMC Mission Bay Campus would be required once a specific location for the potential new Campus has been determined. Thus, this cumulative impact would be potentially adverse.

As shown in Table 3.13-13 in Section 3.13, “Transportation, Traffic, Circulation, and Parking,” the existing SFVAMC Fort Miley Campus would generate a total of approximately 45 new transit trips (six inbound trips to and 39 outbound trips from the Campus) during the weekday p.m. peak hour under Alternative 3, substantially fewer than under Alternative 1. Muni ridership under 2040 Cumulative Conditions (No Action) is summarized in Table 4-6.

Parking conditions at the existing SFVAMC Fort Miley Campus are expected to be similar to 2027 Long-Term Alternative 3 Conditions, as discussed in Section 3.13, “Transportation, Traffic, Circulation, and Parking.” Cumulative parking impacts would be minor at the existing Campus. Further analysis of parking impacts at the potential new SFVAMC Mission Bay Campus would be required once a specific location for the potential new Campus has been determined. Thus, this cumulative impact would be potentially adverse.

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