3.14 UTILITIES

This section describes the existing physical and regulatory setting related to water supply, wastewater, electricity, and natural gas utilities and discusses the potential effects of the EIS Alternatives on these utilities.

3.14.1 Affected Environment

Water Supply

The existing SFVAMC Fort Miley Campus and the Mission Bay area are served by the San Francisco Public Utilities Commission (SFPUC), which is a department of the City and County of San Francisco. Approximately 96 percent of SFPUC's water supply is conveyed through the Regional Water System (RWS), which is made up of a combination of runoff into local Bay Area reservoirs and diversions from the Tuolumne River through the Hetch Hetchy Water and Power Project. A small portion of San Francisco's water demand is also met by locally produced groundwater and secondary-treated recycled water.

Regional Water System

SFPUC's RWS stretches from the Sierra Nevada to the Bay Area and serves approximately 2.5 million residential, commercial, and industrial customers in the Bay Area and the Sierra Nevada foothills (SFPUC, 2011a). Through the RWS's three integrated water supply and conveyance systems (Hetch Hetchy, Alameda, and Peninsula Systems), SFPUC provides an average of approximately 265 million gallons per day (mgd) to users in Tuolumne, Alameda, Santa Clara, San Mateo, and San Francisco Counties (SFPUC, 2011b).

Most of the water supply for the RWS originates in the upper Tuolumne River watershed high in the Sierra Nevada. This water source, referred to as Hetch Hetchy water, is transported in pipes and tunnels to the Bay Area, requiring only primary disinfection and pH adjustment to control pipeline corrosion. The RWS travels 160 miles via gravity from Yosemite to the Alameda East Portal at Sunol Valley. On average, the Hetch Hetchy Reservoir provides more than 85 percent of the water delivered to the Bay Area. During times of drought, the water received from the Hetch Hetchy system can amount to more than 93 percent of the total water delivered.

On average, Bay Area reservoirs (Calaveras, San Antonio, Crystal Springs, San Andreas, Stone Dam, and Pilarcitos Reservoirs) provide approximately 15 percent of the water delivered by SFPUC's RWS. Reservoir storage allows the system to carry over part of its water supply from year to year. The Alameda watershed, located in Alameda and Santa Clara Counties, collects surface water for storage in Calaveras and San Antonio Reservoirs. In addition, the Sunol Filter Galleries near the town of Sunol provide groundwater that contributes less than 1 percent of San Francisco's water supply. The Peninsula watershed in San Mateo County captures surface water for storage in lower and upper Crystal Springs and San Andreas Reservoirs, and in a smaller reservoir, Pilarcitos. The six total reservoirs in Alameda, Santa Clara, and San Mateo Counties capture rain and local runoff and store some Hetch Hetchy water. All local water from the Alameda and Peninsula watersheds is treated and filtered before it is delivered. A small portion of retail demand is met by locally produced groundwater, which is used primarily for irrigation at local parks and on highway medians, and by recycled water, which is used for wastewater treatment process water, sewer box flushing, and similar washdown operations.

SFPUC also retails groundwater (pumped from the Pleasanton well field) to the Castlewood development in Alameda County.

San Francisco's retail water supply is conveyed through the Peninsula System to San Francisco by several major pipelines. On the east side of the City's water distribution system, two pipelines terminate at University Mound near John McLaren Park. On the west side of the distribution system, two pipelines terminate at Sunset Reservoir and one terminates at Merced Manor Reservoir. Ten reservoirs and eight water tanks store the water, and 18 pump stations and approximately 1,250 miles of pipelines move water throughout the system and deliver water to homes, businesses, and institutions in San Francisco. SFPUC is engaged in a systemwide water system improvement plan (WSIP) to repair, replace, and seismically upgrade portions of the regional water system. The program, scheduled for completion in 2015, includes improvements to the system's aging pipelines, tunnels, dams, reservoirs, pump stations, and storage tanks.

Local Water Supply Sources

San Francisco is located atop all or part of seven groundwater basins: the Westside, Lobos, Marina, Downtown, Islais Valley, South, and Visitacion Valley Basins. The Lobos, Marina, Downtown, and South Basins are located wholly within the city limits, and the other three extend south into San Mateo County. The portion of the Westside Basin aquifer located within San Francisco is referred to as the North Westside Basin. All of the basins except the Westside and Lobos Basins are generally inadequate to supply a significant amount of groundwater for municipal supply because their yields are low. For the past several decades, groundwater has been pumped from wells located in Golden Gate Park and at the San Francisco Zoo within the North Westside Basin; based on flow meter data, approximately 1.5 mgd is produced by these wells (SFPUC, 2011b). The groundwater from the North Westside Basin is mostly used by the City's Recreation and Park Department for irrigation in Golden Gate Park and at the zoo. The California Department of Water Resources (DWR) has not identified the North Westside Basin as overdrafted, nor as projected to be overdrafted in the future (SFPUC, 2011b).

In addition to local water supply sources, local recycled water provides a small percentage of San Francisco's water. The Harding Park, Pacifica, and proposed Westside and Eastside recycled water projects are being developed in San Francisco (retail service area). The Harding Park and Pacifica projects are currently under construction, the proposed Westside recycled water project is in the design stage, and the proposed Eastside recycled water project is in the planning stage. Together, these projects will provide up to 4 mgd of recycled water to a variety of users in San Francisco, primarily for landscape irrigation and toilet flushing. Recycled water produced as part of these projects will undergo tertiary treatment, which will result in water quality sufficient to meet the needs and requirements associated with each end use (SFPUC, 2011b).

Water Supply Reliability Planning

The WSIP is a multiyear program to upgrade SFPUC's RWS and local water systems. The WSIP will implement capital improvements that promote SFPUC's ability to provide reliable, affordable, high-quality drinking water to its regional retail customers in Alameda, Santa Clara, and San Mateo Counties, as well as San Francisco customers, in an environmentally sustainable manner. The WSIP is structured to cost-effectively meet water quality requirements, improve seismic and delivery reliability goals through the year 2030, and meet water supply objectives until the year 2018 (SFPUC, 2010).

The California Urban Water Management Act of 1983 (Water Code Sections 10610–10657) requires that all urban water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually prepare an urban water management plan (UWMP). These plans were first submitted to DWR in 1985; updated plans must be submitted to DWR every 5 years. In June 2011, SFPUC adopted the most recent UWMP for the City and County of San Francisco. The UWMP forecasts a slight increase in residential water demand as a result of San Francisco's estimated 0.4 percent average growth rate per year through 2035 (SFPUC, 2011b). The demand is expected to be offset by increased efficiency (e.g., more efficient plumbing in newer and remodeled housing). As population grows, so does the demand for health care. The UWMP forecasts increased water usage for "services," which include health care (SFPUC, 2011b).

Water Demand

From 2007 to 2010, San Francisco customers used an average of 68 mgd of water. A little more than half the city's water use is residential, the majority for multifamily residences. Nonresidential users, which include the manufacturing, transportation, trade, finance, and government sectors, represent about 29 percent of consumption. "Unaccounted-for water" makes up the difference, and refers to unmetered water uses such as pipe flushing and street cleaning, as well as meter inaccuracies and system water losses. In 2009–2010, San Francisco's gross per-capita use, including all residential, commercial, and municipal users, was less than 80 gallons per capita per day. In the same year, residential per-capita use was estimated to be approximately 50 gallons per capita per day.

SFPUC provides water to the existing SFVAMC Fort Miley Campus. The water system infrastructure supporting the Campus, which serves the Campus's potable water and fire-suppression water needs, was originally constructed in 1934; however, several building additions and expansions, which also included expansions of the original water distribution system, have been completed since that time. The system distributes water throughout the Campus via a loop system. The system consists of the following components:

- One 500,000-gallon reservoir located in Building 29 (on the southwestern part of the Campus)
- Three pumps, including a primary pump (P-1), a secondary pump (P-2), and a fire pump (P-3) located in Building 30 (pump station) (adjacent to Building 29 on the southwestern part of the Campus)
- One 40,000-gallon water tower located in Building 206 (on the northwestern part of the Campus)

The reservoir is fed from the City's water distribution system through primary and secondary connection points located on Clement Street. From the reservoir, the primary and secondary pumps (P-1 and P-2) pressurize the existing SFVAMC Fort Miley Campus's loop water system and feed the water tower. The water tower back-feeds the distribution system when the pumps are not running.

Between 2004 and 2011,[1] the existing SFVAMC Fort Miley Campus had an average water demand of approximately 46.6 million gallons per year, or approximately 0.13 mgd.

Wastewater and Stormwater

SFPUC oversees San Francisco's wastewater collection and conveyance infrastructure. This infrastructure consists of a combined sewer system that collects both sewage and stormwater, collecting, conveying, treating,

[1] Water demand for 2011 was projected to be approximately 48.1 million gallons per year.

and discharging all of the dry-weather domestic wastewater and urban runoff flows and wet-weather flows. The system uses natural watershed areas wherever possible to take advantage of gravity flow for the collection, transport, treatment, and discharge of wastewater and stormwater. The conveyance infrastructure consists of approximately 24,800 manholes, 25,000 catch basins, 19 small lift stations, and more than 976 miles of sewers ranging from 8 inches in diameter to large multicompartmental structures measuring up to 44 feet by 25 feet (SFPUC, 2010). The wastewater and stormwater that flow to facilities for treatment are ultimately discharged into San Francisco Bay or the Pacific Ocean through outfall structures along the shoreline (SFPUC, 2009).

San Francisco is divided into two major drainage areas, Oceanside and Bayside. The City operates three wastewater treatment facilities: The Southeast Water Pollution Control Plant (SEP), Oceanside Water Pollution Control Plant (OSP), and North Point Wet Weather Treatment Facility. The SEP and OSP both operate year-round, while the North Point Water Pollution Control Facility operates only during wet weather.

The SEP, built in 1952 and expanded between 1977 and 1982, is located on the east side of San Francisco near Third Street and Evans Avenue in the Bayview District. The plant treats all eastside sewage flows, including flows in the Mission Bay area, during dry weather; the SEP treats an average dry-weather flow of 67 mgd. The SEP can treat up to 250 mgd during wet weather (i.e., primary treatment capacity of 250 mgd and secondary treatment capacity of 150 mgd).

The OSP, the City's newest treatment facility, was completed in 1993. This facility, located off the Great Highway near the San Francisco Zoo, serves the city's west side, including the existing SFVAMC Fort Miley Campus. The OSP treats an average dry-weather flow of approximately 17 mgd and can treat up to 65 mgd during wet weather (i.e., primary treatment capacity of 65 mgd and secondary treatment capacity of 43 mgd). The plant provides primary- and secondary-level treatment before discharging treated effluent into the Pacific Ocean through the 4.5-mile Southwest Ocean Outfall (SFPUC, 2009).

The North Point Water Pollution Control Plant has operated since 1951. This facility is located on Bay Street and the Embarcadero near lower Telegraph Hill and the North Waterfront area. The plant operates only during rain events, providing primary treatment to combined flows collected during storms, and has a treatment capacity of 150 mgd. On average, the facility operates 30 times per year.

SFPUC's sewer system has a combined design capacity of approximately 90 mgd of wastewater during dry weather. The system discharges treated wastewater through two outfall pipes, one to San Francisco Bay and the other to the Pacific Ocean. The average dry-weather flow is approximately 80 mgd of wastewater that is collected and transported to one of the two main treatment plants. During wet weather, the facilities increase their operations and can treat approximately 465 mgd of wastewater (CCSF, 2010).

SFPUC is evaluating the potential implementation of a sewer system improvement program to address issues of aging infrastructure and system deficiencies related to climate change, and to improve operational efficiency and reduce community impacts.

The existing stormwater system for the SFVAMC Fort Miley Campus is primarily a combined system composed of drainage inlets and stormwater piping. Stormwater runoff is collected from parking lots, streets, pedestrian walkways, landscaped areas, and building roofs. It is then concentrated in gutters and drain pipes and conveyed to

SFPUC's combined sewer interceptor on Clement Street. A small separate storm drainage system conveys stormwater off-site on the north side of the Campus along the slope facing the Golden Gate Bridge.

The existing sanitary sewer system at the SFVAMC Fort Miley Campus collects and conveys wastewater from building lateral connections to the site's combined sewer system and eventually to SFPUC's combined sewer interceptor on Clement Street.

As discussed previously, the average water demand for the existing SFVAMC Fort Miley Campus from 2004 through 2011 was approximately 46.6 million gallons per year, or approximately 0.13 mgd. It is estimated that 78 percent of total domestic water used by the SFVAMC ends up as wastewater (SFVAMC, 2012); therefore, the Campus has an average wastewater generation of approximately 36.3 million gallons per year, or approximately 0.10 mgd.

Electricity and Natural Gas

Pacific Gas and Electric Company (PG&E), which is regulated by the California Public Utilities Commission (CPUC), provides electricity and natural gas to approximately 15 million people throughout a 70,000-square-mile service area in northern and central California, including the project area (PG&E, 2011). Specific information about electric and natural gas service is provided below.

Electricity

Approximately 5.1 million customers receive electricity through 141,215 circuit miles of electric distribution lines and 18,616 circuit miles of interconnected transmission lines. PG&E produces its power from a mixture of sources, including hydropower, gas-fired steam, and nuclear energy, and acquires electricity from more than 400 plants owned by independent power producers and some out-of-state power producers.

San Francisco uses approximately 5,000 gigawatt-hours of electricity per year, with peak usage at approximately 0.9 gigawatt each year. Hospital and healthcare uses account for approximately 3 percent and office uses account for approximately 36 percent of electricity consumption; by percentage, office uses are the land use consuming the most electricity. Citywide, total yearly electricity consumption grew by 9 percent between 1994 and 2000 but decreased by approximately 2.4 percent by 2001 (the last year for which annual data were available). Based on the most conservative forecasts of electricity demand prepared by PG&E for planning for grid reliability, SFPUC anticipated an increase of approximately 20 percent in peak electricity demand (the greatest amount of electricity demand per hour) in San Francisco between 2002 and 2012 (CCSF, 2009).

The 2002 Electricity Resource Plan of SFPUC and the San Francisco Department of the Environment discusses electricity sources and projected citywide demand. Since this plan was issued, SFPUC has installed nine new transmission lines to bring electricity to San Francisco. As a result, CPUC and the California Independent System Operator determined that San Francisco had sufficient power generation redundancy to remove the Hunters Point Power Plant from service. Closure of that plant, which occurred in 2006, was the first priority of the Electricity Resource Plan. The plan's second objective is the closure of the Potrero Generation Plant. However, before that plant can be closed, SFPUC must demonstrate additional power generation redundancy. Therefore, SFPUC is seeking approval from CPUC to install four hydrothermal power generation plants.

PG&E provides electric services to the existing SFVAMC Fort Miley Campus through the existing power distribution system, which consists of 15-kilovolt (kV) PG&E service cables, 15-kV metal-clad switchgear, 12 substations and load centers, various switchboards, panel boards, and motor control centers. From 2006 through 2011,[2] the Campus had an average electricity demand of approximately 22,144 megawatt-hours (MWh) per year.

The existing system is being upgraded through the Electrical Systems Upgrades Project. As part of this project, PG&E is upgrading an existing feeder line along Clement Street to convert the existing secondary service to the existing SFVAMC Fort Miley Campus to a low-level transmission service (Ketcherside, pers. comm., 2011). To make use of the increased loads, the SFVAMC is replacing and upgrading the existing infrastructure to provide adequate and reliable power to the Campus, and to accommodate future building loads. Specifically, the existing underground 4.16-kV ring bus feeders will be replaced with new underground 15-kV double ring bus feeders, cable pull boxes, and feeder loop isolation switches around the Campus's perimeter. A total of 12 substation transformers and electrical distribution panels will provide power to the various buildings at 480-volts or 208/120-volts. Further, additional substation transformers and distributions can be installed to the 15-kV feeder loop to provide capacity for future load growth.

The SFVAMC's electrical needs are also supported by an existing backup power system consisting of three stationary engine generators:

- One 1,000-kW engine-generator unit located in Building 203 serves the critical and life-safety loads for Buildings 200 and 203.
- Two 675-kW engine-generators located in Building 205 are connected to a paralleling switchgear that feeds all other critical loads on the existing SFVAMC Fort Miley Campus.
- One stand-alone 35-kW engine-generator located in Building 17 supplies backup power.
- One portable trailer-mounted 1,000-kW engine-generator is available for use in the event of failure at any stationary unit.

A new 1,000-kW engine-generator has been installed in the existing paralleling switchgear located in Building 205. This addition has increased the overall total backup power system capacity to 3,385 kW, more than 50 percent of the expected full future load, making the backup system's capacity adequate to support future critical and life-safety power needs.

Electricity to the Mission Bay area is served by the Potrero and Embarcadero Substations. PG&E's primary distribution line rights-of-way run parallel with local streets.

Natural Gas

Natural gas is delivered to PG&E's 4.3 million natural gas customers through approximately 42,141 miles of distribution pipeline and 6,438 miles of transportation pipelines from three major sources: California, the southwestern United States, and Canada. San Francisco's annual demand for natural gas is approximately 27 million metric British thermal units (MMBtu). The current demand is approximately 5 MMBtu lower than the city's peak demand for gas in 1989 (approximately 32 MMBtu) (CCSF, 2009).

[2] Electricity consumption for 2011 was projected to be approximately 23,338 megawatts.

Natural gas is fed to the existing SFVAMC Fort Miley Campus through a single main gas line from PG&E. This line is a 4-inch-diameter high-pressure line that runs from the 4300 block of Clement Street onto the Campus near Building 30 on the southwestern part of the Campus. A pressure regulator at this location lowers the incoming pressure to 11 pounds per square inch for all of the Campus piping. A meter adjacent to the pressure regulator tracks the Campus's natural gas usage. Most of the Campus's natural gas service is firm gas with no automatic shut-off valves, with the exception of a 6-inch-diameter line that feeds into Building 205 (Energy Plant). This line is equipped with an earthquake valve (located at the southeast corner of the building), which will close when activated by an earthquake of a specific magnitude. The emergency natural gas shutoff valve is controlled by the energy plant operators. From 2006 through 2011,[3] the Campus had an average natural gas demand of approximately 131,000 MMBtu.

3.14.2 Regulatory Framework

Federal Clean Water Act

In 1972 the Clean Water Act was enacted to regulate the discharge of pollutants to receiving waters such as oceans, bays, rivers, and lakes. The objective of the act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" by regulating discharges of pollutants into the waters of the United States. The major federal legislation governing stormwater quality, the Clean Water Act established a two-phase plan to regulate runoff of polluted stormwater under the National Pollutant Discharge Elimination System. The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management, and is authorized to implement pollution control programs such as setting wastewater standards for industry. The Clean Water Act also requires that water quality standards be set for all contaminants in surface waters. Construction and operation of the Proposed Action may result in discharge to waters of the United States and adversely affect stormwater quality; therefore, the Proposed Action is subject to the regulations set forth under the federal Clean Water Act.

Safe Drinking Water Act

Originally enacted in 1974, the Safe Drinking Water Act aimed to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and groundwater wells. The Safe Drinking Water Act authorizes EPA to set national health-based standards for drinking water to protect against both naturally occurring and human-made contaminants that may be found in drinking water. Construction and operation of the Proposed Action may result in impacts on water sources and/or water distribution systems that provide public drinking water. Therefore, the Proposed Action is subject to the regulations set forth under the Safe Drinking Water Act.

Combined Sewer Overflow Control Policy

In 1994, EPA adopted the Combined Sewer Overflow (CSO) Control Policy (50 *Federal Register* 18688, April 11, 1994), which established a two-phase control program for communities with combined sewer systems. In the first phase of this program, communities receiving permits from EPA for their combined sewer systems must

[3] The natural gas demand of the existing SFVAMC Fort Miley Campus in 2011 is projected to be approximately 123,000 cubic feet.

implement a series of nine technology-based controls that have been designed to reduce the frequency of CSOs and limit their effects on receiving waters. These controls focus on pretreating both wastewater and stormwater runoff to remove pollutants before they reach the sewer, eliminating CSOs during dry weather, using storage to minimize wet-weather CSOs, controlling floatables and settleable solids within CSO discharges, and notifying the public when CSOs occur.

In the second phase, permittees also must either:

- ensure that, on average, no more than four CSO events will occur per year;
- provide primary treatment (remove floatables and settleable solids) for at least 85 percent of the total discharge; or
- remove enough pollutants before they enter the sewer system to prevent degradation of receiving waters.

Completion in 1997 of the improvements identified in the City's wastewater master plan has brought San Francisco into compliance with EPA's CSO Control Policy. These improvements consisted mainly of constructing storage culverts and installing discharge weirs (e.g., screens) and skimmers at all CSO outlets. The added storage reduced the frequency of CSOs, and the discharge facilities allow the City to provide at least primary treatment for 100 percent of its stormwater and wastewater discharges. Therefore, although the City averages approximately 10 CSOs each year, it is currently in compliance with the CSO Control Policy as a result of the removal of solids and the primary treatment provided. As a facility sited within San Francisco, the Proposed Action would need to facilitate the City's compliance with the CSO Control Policy.

Department of Veteran Affairs Strategic Sustainability Performance Plan

The *Department of Veteran Affairs Strategic Sustainability Performance Plan* (VA SSPP) was prepared in response to a directive in Section 8 of Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance." That directive requires federal agencies to "develop, implement, and annually update an integrated Strategic Sustainability Performance Plan that will prioritize agency actions" to meet sustainability objectives identified in statutes, regulations, and executive orders. The VA SSPP provides approaches to addressing sustainability goals for a variety of resource areas, including energy and water conservation and alternative fuels, for VA facilities. The Proposed Action would be subject to the performance goals and sustainability measures established in the VA SSPP because the Proposed Action involves a VA facility operated by the Veterans Health Administration.

National Energy Policy

The National Energy Policy, developed in May 2001, provides recommendations on energy use and on the repair and expansion of the nation's existing energy infrastructure, based on the determination that U.S. energy consumption is growing at a faster rate than the current rate of generation. The policy encourages energy conservation while also focusing on increased development of domestic oil, gas, and coal and the use of hydroelectric and nuclear energy resources. The federal policy also proposes research in clean coal technology and expanded generation from landfill gas, wind, and biomass sources to address the heavy reliance on natural gas for new electric power plants. Because the Proposed Action involves expanding an existing facility and would

result in an increase in energy consumption, the Proposed Action should consider the energy conservation recommendations set forth in the National Energy Policy.

Energy Policy Act of 2005

The Energy Policy Act of 2005, signed by President George W. Bush on August 8, 2005, seeks to reduce reliance on nonrenewable energy resources, and provides incentives to reduce the current demand on these resources. For example, under the Energy Policy Act, consumers and businesses may obtain federal tax credits for purchasing fuel-efficient appliances and products. Driving fuel-efficient vehicles and installing energy-efficient appliances can provide many benefits, such as lower energy bills, increased indoor comfort, and reduced air pollution; therefore, businesses are eligible for tax credits for buying hybrid vehicles, building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are given for installing qualified fuel cells, stationary microturbine power plants, and solar-powered equipment. Because the Proposed Action involves expanding an existing facility and would result in an increase in energy consumption, the Proposed Action should consider the energy conservation recommendations set forth in the Energy Policy Act.

National Fire Protection Association Fire Code

The National Fire Protection Association (NFPA) is an international nonprofit organization established in 1896 that provides consensus codes and standards for fire protection. Specifically, the NFPA is responsible for 300 codes and standards designed to minimize the risk and impacts of fire by establishing criteria for building, processing, design, service, and installation in the United States. The NFPA Fire Code provides the requirements to establish a reasonable level of fire safety and property protection in new and existing buildings. The Fire Code includes standards for:

- inspection of permanent and temporary buildings, processes, equipment, systems, and other fire and related life-safety situations;
- investigation of fires, explosions, hazardous materials incidents, and other related emergency incidents; and
- review of construction plans, drawings, and specifications for life-safety systems, fire protection systems, access, water supplies, processes, hazardous materials, and other fire and life-safety issues.

Because the Proposed Action involves the construction of new buildings and/or modification to existing buildings, the standards to minimize fire risks and impacts established by the NFPA should be considered.

3.14.3 Environmental Consequences

Significance Criteria

A NEPA evaluation must consider the context and intensity of the environmental effects that would be caused by, or result from, the EIS Alternatives. Other environmental assessment documents were reviewed and the following criteria were selected for the evaluation.

An alternative would be considered to result in an adverse impact related to utilities if it would:

- require or result in the construction of new electricity or natural gas generation or transmission facilities, the construction of which could cause significant environmental effects;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or
- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Assessment Methodology

An assessment of potential impacts on water, wastewater, electricity, and natural gas was initiated by reviewing the SFVAMC's existing water, electricity, and natural gas consumption rates and wastewater generation rates. To evaluate the impacts of a particular alternative, including the Proposed Action, projections were generated for these utilities based on the square footage of the proposed facilities. Specifically, water use rates were based on the *San Francisco Public Utilities Commission Wholesale Customer Water Demand Projections Technical Report* (SFPUC, 2004), and electricity and natural gas consumption rates were based on the *California Statewide Residential Appliance Saturation Study*. The wastewater generation rate has been agreed upon between SFVAMC and SFPUC. Because of the proposed development of the existing SFVAMC Fort Miley Campus as part of this project and the associated increase in square footage of the Campus, an increase in utility use is anticipated. However, for the purposes of this analysis, utility impacts are considered adverse if the project's construction of new or expanded utility infrastructure or facilities would cause a significant effect.

Alternative 1: SFVAMC Fort Miley Campus Buildout Alternative

Near-Term Projects

Construction

Utility Service Systems

Construction of Alternative 1 near-term projects would involve the use of construction equipment and vehicles, which would result in a temporary increase in energy consumption and fuel use for the duration of construction. Using this construction equipment, however, would not adversely affect existing utility service systems at the existing SFVAMC Fort Miley Campus, such as electricity or natural gas, because vehicles and equipment that would be used during construction would likely be fueled primarily off-site. Further, impacts of energy consumption by construction vehicles and equipment on utility service systems would be short term. Impacts would be minor.

Fire Suppression System

Several utility lines serving the existing SFVAMC Fort Miley Campus are located within the footprint of the Alternative 1 near-term projects. These lines would be relocated as necessary before construction of the new near-

term facilities to prevent interruption of service during construction. To accomplish this, project engineers would prepare and implement a plan to provide alternate service to these buildings before demolition and during construction. Utilities to be relocated would include domestic water, fire suppression water, and combined storm/sanitary sewer lines, underground electric, natural gas, and compressed air lines.

A dedicated fire water line for the facility's fire suppression system would be installed between the new facilities' fire water point of connection and the relocated water lines. Domestic water would also be installed between the new facilities' domestic water point of connection and the relocated water lines. Landscaping irrigation would be provided via existing irrigation systems or via new water feeds from existing water lines at the existing SFVAMC Fort Miley Campus. Because no interruption to the fire suppression system is anticipated, no impacts on the fire suppression system would occur during construction.

Stormwater Drainage Facilities

Regarding potential impacts on stormwater drainage facilities during construction, the existing SFVAMC Fort Miley Campus operates under an Industrial User Class I Wastewater Permit issued by SFPUC (Permit No. 07-0622), in accordance with Article 4.1 of the San Francisco Public Works Code. This permit requires the implementation of a site-specific storm water pollution prevention plan that describes the SFVAMC's stormwater management program and indicates procedures to eliminate or reduce pollution related to stormwater runoff. Measures include protecting all storm drain and catch basin inlets, establishing perimeter controls, covering construction materials and mounds, maintaining wash-out areas for wet construction materials, conducting inspections, and completing regular maintenance.

Potential impacts on existing stormwater facilities during construction would also be minimized by implementing the requirements for protection of land resources outlined in VA Specification Section 015719, "Temporary Environmental Controls." 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, hazardous material spill prevention measures, managing spoil areas, and following good-housekeeping procedures.

Should dewatering be necessary during construction, any discharge to the combined sewer system would be performed in compliance with Article 4.1 of the San Francisco Public Works Code, as supplemented by Order No. 158170. Under Article 4.1, discharges to the combined sewer system from temporary dewatering of construction sites are regulated by the Batch Wastewater Discharge Permit issued by SFPUC. This would involve obtaining a permit no later than 45 days before discharge. The permit would contain discharge standards and other appropriate requirements that must be achieved before discharge into the sewerage system may commence. Dewatering activities would not require the construction of new or expansion of existing stormwater facilities; therefore, no impacts on stormwater drainage facilities would occur.

Operation

The Alternative 1 near-term projects include the expansion/modification of existing facilities and construction of new facilities; therefore, alteration of the existing utility systems would be required as necessary to support larger facilities occupying a larger footprint.

Water Supply

Improvements to the existing water distribution system at the existing SFVAMC Fort Miley Campus would be required with implementation of the Alternative 1 near-term projects because of utility conflicts with proposed facilities and other site improvements. Water system improvements would involve removing and abandoning existing water mains within proposed building footprints and installing new water mains providing potable water and fire suppression water to new buildings. Specifically, new domestic water service connections would be established to provide potable water to the buildings and new fire hydrants and fire sprinkler system services would be installed to meet NFPA Fire Code requirements.

To evaluate potential impacts of Alternative 1 near-term projects on existing water infrastructure, current water use at the existing SFVAMC Fort Miley Campus was compared to projected future water demands for Alternative 1 near-term projects. From 2004 through 2011, the Campus had an average water demand of approximately 46.6 million gallons per year (0.13 mgd). Based on the *San Francisco Public Utilities Commission Wholesale Customer Water Demand Projections Technical Report* (SFPUC, 2004), the estimated increase in water demand associated with the near-term projects would be 3.4 million gallons per year (0.009 mgd),[4] for a projected water demand total of 50.0 million gallons per year (0.137 mgd) through mid-2015. These estimates assume that the current rate of water consumption would continue and that no water conservation measures would be implemented. The VA SSPP, however, establishes water conservation goals for VA facilities to be achieved by 2020. Specifically, the VA SSPP states that VA facilities have a potable-water reduction target of 16 percent[5] by 2015, as compared to the base year (2007). Therefore, implementing water conservation measures as part of the near-term projects and applying those measures to existing water usage to meet the maximum reduction targets specified in the VA SSPP would result in an estimated water demand total of 42.0 million gallons per year (0.115 mgd). Table 3.14-1 summarizes the projected water demands of Alternative 1 near-term projects.

SFPUC has confirmed that implementation of the near-term phase of Alternative 1 is included in SFPUC's 2010 UWMP (Petrick, pers. comm., 2011); regardless of whether the SFVAMC implements the VA SSPP's reduction target, SFPUC would be able to accommodate the near-term projects, and those projects would not require a major expansion of the existing water utility system.

Given the projected incremental increase in the percentage of San Francisco's total increased water demand and the consideration of the Proposed Action in SFPUC's UWMP, operational impacts of Alternative 1 near-term projects on water supply would be minor.

Wastewater and Stormwater

As discussed previously, the existing SFVAMC Fort Miley Campus is located within the service area of the City's combined sewer system; therefore, both domestic wastewater and stormwater flow into the sewers. Specifically, stormwater runoff collected from parking lots, streets, pedestrian walkways, landscaped areas, and building roofs is concentrated in gutters and drain pipes and conveyed to SFPUC's combined sewer interceptor on Clement Street or to the smaller separate storm drainage system on the north side of the Campus. This method of

[4] This value is based on an increase of 54,300 square feet as proposed as part of the near-term projects (not including new parking, as parking does not have an associated water demand) and a rate of 62.3 gallons/square foot/year.

[5] Although the VA SSPP requires a 16 percent reduction target by 2015, the SFVAMC has committed to a 30 percent reduction target; therefore, the projected calculations provided are considered to be conservative.

Table 3.14-1: Projected Water Demands of Alternative 1 Near-Term Projects through August 2015

Projection Type	Increase in Water Demand[1] (million gallons)		Total Water Demand[2] (million gallons)	
	Per Year	Per Day	Per Year	Per Day
Without VA SSPP Reduction Target	3.4	0.009	50.0	0.137
With SSPP Reduction Target	2.8	0.008	42.0	0.115

Source: Water demand calculated by AECOM in 2012; SFPUC, 2004.

Notes:
VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*
1 The increase in water demand represents the water demand associated with near-term projects only.
2 The total water demand represents existing water demands plus estimated water demands associated with near-term projects.

discharge would generally continue with implementation of the project. The project would not significantly alter land use or impervious site characteristics adversely. In addition landscaping and sustainable features (e.g., green roofs) would be incorporated as part of building design. These features would provide improved ground/soil absorption of runoff and control erosion and pollution, and would improve stormwater runoff quality. The use of energy dissipaters to prevent concentrated flows would also minimize the impact of stormwater flows. Site drainage would flow via at-grade catch basins and area drains to landscaped areas and underground gravity lines. All buildings and the site contours would be designed to minimize stormwater runoff to the extent practicable.

Sewer service to the existing SFVAMC Fort Miley Campus is provided via connections to existing wastewater lines. Wastewater generated at the Campus is treated by the OSP. As discussed previously, the average water demand for the Campus from 2004 through 2011 was approximately 46.6 million gallons per year, or approximately 0.13 mgd. It is estimated that 78 percent of total domestic water used at the SFVAMC ends up as wastewater; therefore, the Campus has an existing average wastewater generation of 36.3 million gallons per year, or 0.10 mgd. Table 3.14-2 lists the projected wastewater generation rates for Alternative 1 near-term projects with and without implementation of the VA SSPP reduction target for water consumption.

Near-term projects under Alternative 1 would involve adding some new buildings that would support medical uses similar to those at the existing SFVAMC Fort Miley Campus; however, the changes would not substantially change the quantity of wastewater discharged. Further, Alternative 1 would involve implementing the VA SSPP, which would provide guidelines and practices for stormwater and sewer improvements. Implementing these guidelines would reduce the impact of potentially increasing stormwater and sewer water loads on the existing infrastructure and its limited capacity. Specifically, the increase in wastewater generation under Alternative 1 near-term projects represents only a 0.04 percent increase[6] in dry-weather flows at the OSP, which serves the Campus. Therefore, no expansion of existing wastewater/stormwater facilities or infrastructure would be required. Operational impacts of Alternative 1 near-term projects related to wastewater and stormwater would be minor.

6 The OSP treats an average dry-weather flow of approximately 17 mgd. The percent increase is calculated as: 1 - ((17 mgd - 0.006 mgd)/17 mgd) = 0.04 percent.

Table 3.14-2: Projected Wastewater Generation Rates for Alternative 1 Near-Term Projects through August 2015

Projection Type	Increase in Wastewater Generation[1] (million gallons)		Total Wastewater Generation[2] (million gallons)	
	Per Year	Per Day	Per Year	Per Day
Without VA SSPP Reduction Target	2.6	0.007	39.0	0.107
With SSPP Reduction Target	2.2	0.006	32.7	0.090

Source: Wastewater generation calculated by AECOM in 2012 assuming that 78 percent of water demand = wastewater generated; SFVAMC, 2012.

Notes:
VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*
1 The increase in wastewater generation represents the wastewater associated with near-term projects only.
2 The total wastewater generation represents existing wastewater plus estimated wastewater generation associated with near-term projects.

Electricity and Natural Gas

Although Alternative 1 would involve expanding the existing SFVAMC Fort Miley Campus, the overall energy efficiency would likely improve with the decommissioning, demolition, and replacement of older, energy-intensive buildings. Consistent with the VA SSPP, SFVAMC intends to incorporate physical features and operational measures that would sustain and improve environmental efficiencies through a sustainable design master plan to achieve a 15 percent reduction in greenhouse gas emissions by 2015 (29.6 percent reduction by 2020). The improvements in the Sustainable Design Master Plan include the use of stand-alone technologies such as installing photovoltaic panels on the roofs of new and/or existing buildings, as partial shades over windows or in open land areas as a method of providing building electrical power on-site.

Table 3.14-3 summarizes the projected electricity demands of Alternative 1 near-term projects with and without implementation of the VA SSPP reduction target of 15 percent[7] in energy usage. With implementation of the VA SSPP reduction target, the projected electricity demand for operation of the near-term projects would increase electricity consumption at the SFVAMC Fort Miley Campus by an estimated 14.4 percent. This increase would be accommodated by the Electrical Systems Upgrades Project, which is being implemented on the Campus; therefore, no further system upgrades or infrastructure modifications would be necessary.

To ensure that the emergency power supply would be adequate in the event of a power failure, a 1,000-kW engine-generator to the existing paralleling switchgear located in Building 205 has been installed to accommodate the increased demand associated with Alternative 1. This addition has increased the overall total backup power system capacity to 3,385 kW, equivalent to more than 50 percent of the expected full future load, thus making the backup system adequate to support future critical and life-safety power needs.

Natural gas is provided to the existing SFVAMC Fort Miley Campus via a single 4-inch-diameter high-pressure line that extends north from the 4300 block of Clement Street to near Building 30 on the southwestern part of the

7 Although the VA SSPP requires a 15 percent reduction target by 2015, the San Francisco Veterans Administration Medical Center has committed to a 30 percent reduction target; therefore, the projected calculations provided are considered to be conservative.

Table 3.14-3: Projected Electricity and Natural Gas Demands of Alternative 1 Near-Term Projects through August 2015

Projection Type	Electricity Demand per Year (MWh)		Natural Gas Demand per Year (MMBtu)	
	Increase in Demand	Total Demand	Increase in Demand	Total Demand
Without VA SSPP Reduction Target	3,760	25,845	22,623	155,504
With SSPP Reduction Target	3,196	25,281	19,230	152,111

Source: Electrical and natural gas demands calculated by AECOM in 2012; Bay Area Air Quality Management District Greenhouse Gas Model Version 1.1.9

Notes:

MMBtu = million metric British thermal units; MWh = megawatt-hours; VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*

Campus. The Campus currently uses 131,000 MMBtu. Table 3.14-3 summarizes the natural gas demands of Alternative 1 near-term projects with and without implementation of the VA SSPP's energy usage reduction target of 15 percent by 2015. With implementation of the VA SSPP reduction target, the projected natural gas demand for operation of the near-term projects would increase natural gas consumption at the Campus by 14.4 percent. However, existing infrastructure capacity is considered adequate to accommodate the anticipated demand at the Campus. Should on-site improvements and connections be required, such improvements would be coordinated with PG&E during the continued planning of the near-term projects. The construction and operation of new electric and natural gas distribution lines would be completed in compliance with federal, State, and local regulatory requirements, minimizing the potential for adverse impacts. As a result, operational impacts of Alternative 1 near-term projects related to electricity and natural gas would be minor.

Long-Term Projects

Construction

Construction impacts of Alternative 1 long-term projects would be similar to those of Alternative 1 near-term projects. Any impacts of construction on utility systems would range in significance from no impact to minor.

Operation

Water Supply

The impacts of Alternative 1 long-term projects on water supply would be similar to those of Alternative 1 near-term projects. Without implementation of the VA SSPP reduction target, the increase in water demand under Alternative 1 long-term projects through 2023 is projected to be 11.8 million gallons per year (0.032 mgd), for a total water demand of 61.8 million gallons per year (0.169 mgd). (Total water demand includes existing water demands as well as water demands for short-term and long-term projects.)

However, should the SFVAMC achieve the VA SSPP's reduction target goal of a 26 percent reduction in potable water consumption by 2020, the increase in water demand through 2023 is projected to be 8.7 million gallons per

year (0.024 mgd), for a total water demand of 45.7 million gallons per year (0.125 mgd). (Again, total water demand would include existing, short-term project, and long-term project water demands.)

Table 3.14-4 summarizes the projected water demands of Alternative 1 long-term projects.

Table 3.14-4: Projected Water Demands of Alternative 1 Long-Term Projects through 2023

Projection Type	Increase in Water Demand[1] (million gallons)		Total Water Demand[2] (million gallons)	
	Per Year	Per Day	Per Year	Per Day
Without VA SSPP Reduction Target	11.8	0.032	61.8	0.169
With SSPP Reduction Target	8.7	0.024	45.7	0.125

Source: Water demand calculated by AECOM in 2012; SFPUC, 2004.

Notes:
VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*
1 The increase in water demand represents the water demand associated with long-term projects only.
2 The total water demand represents existing water demands plus estimated water demands associated with near-term and long-term projects.

SFPUC has confirmed that implementation of the long-term phase of Alternative 1 is included in SFPUC's 2010 UWMP; regardless of whether the SFVAMC implements the VA SSPP's reduction target, SFPUC would be able to accommodate the long-term projects (Petrick, pers. comm., 2011). Therefore, implementing Alternative 1 long-term projects would not require a major expansion of the existing water utility system, and operational impacts on water supply are anticipated to be minor.

Wastewater and Stormwater

The impacts of Alternative 1 long-term projects related to wastewater and stormwater would be similar to those of Alternative 1 near-term projects. Without implementation of the SSPP reduction target, the increase in wastewater generation under Alternative 1 long-term projects through 2023 is projected to be 9.2 million gallons per year (0.025 mgd), and the total annual wastewater generation at the existing SFVAMC Fort Miley Campus is estimated to be 48.2 million gallons per year (0.132 mgd). (Total annual wastewater generation includes existing wastewater generation as well as wastewater generated by project Phase 1 and Phase 2.)

However, should the SFVAMC achieve the VA SSPP's reduction target goals, the increase in wastewater generation through 2023 is projected to be 6.8 million gallons per year (0.019 mgd) and the total annual wastewater generation at the Campus is estimated to be 35.7 million gallons per year (0.098 mgd). (Again, total annual wastewater generation would include existing, short-term and long-term project wastewater generation.)

Table 3.14-5 summarizes the projected wastewater generation rates for Alternative 1 long-term projects. For the same reasons described for Alternative 1 near-term projects, operational impacts of Alternative 1 long-term projects related to wastewater/stormwater are anticipated to be minor.

Table 3.14-5: Projected Wastewater Generation Rates for Alternative 1 Long-Term Projects through 2023

Projection Type	Increase in Wastewater Generation[1] (million gallons)		Total Wastewater Generation[2] (million gallons)	
	Per Year	Per Day	Per Year	Per Day
Without VA SSPP Reduction Target	9.2	0.025	48.2	0.132
With VA SSPP Reduction Target	6.8	0.019	35.7	0.098

Source: Wastewater generation calculated by AECOM in 2012 assuming 78 percent of water demand = wastewater generated; SFVAMC, 2012.

Notes:

VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*

1 The increase in wastewater generation represents the wastewater associated with long-term projects only.

2 The total wastewater generation represents existing wastewater generation plus estimated wastewater generation associated with near-term and long-term projects.

Electricity and Natural Gas

The impacts of Alternative 1 long-term projects related to electricity and natural gas would be similar to those of Alternative 1 near-term projects. Table 3.14-6 summarizes the projected increase in electricity and natural gas demand under Alternative 1 long-term projects through 2023 with and without implementation of the VA SSPP's 29.6 percent reduction target rate. With implementation of the SSPP reduction target, the projected electricity demand for operation of the long-term and near-term projects would increase SFVAMC electricity consumption by an estimated 25.6 percent and natural gas consumption by 28.9 percent compared to current usage. The electrical consumption increase would be accommodated by the Electrical Systems Upgrades Project, currently being implemented on the SFVAMC Fort Miley Campus. Operational impacts of Alternative 1 long-term projects related to electricity and natural gas are anticipated to be minor.

Table 3.14-6: Projected Electricity and Natural Gas Demands of Alternative 1 Long-Term Projects through 2023

Projection Type	Electricity Demand per Year (MWh)		Natural Gas Demand per Year (MMBtu)	
	Increase in Demand	Total Demand	Increase in Demand	Total Demand
Without VA SSPP Reduction Target	3,491	29,336	21,006	176,510
With VA SSPP Reduction Target	2,458	27,739	14,788	171,341

Source: Electrical and natural gas demands calculated by AECOM in 2012; Bay Area Air Quality Management District Greenhouse Gas Model Version 1.1.9.

Notes:

MMBtu = million metric British thermal units; MWh = megawatt-hours; VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*

Alternative 2: SFVAMC Fort Miley Campus Plus Mission Bay Campus Alternative

Near-Term Projects

Alternative 2 near-term projects (both construction and operation) would be the same as Alternative 1 near-term projects (see Tables 2-1 and 2-2 and Figures 2-1 and 2-2). Therefore, the impacts of Alternative 2 near-term projects would be the same as the impacts of Alternative 1 near-term projects. These impacts would range in significance from no impact to minor impact.

Long-Term Projects

Alternative 2 long-term projects (both construction and operation) at the existing SFVAMC Fort Miley Campus would be the same as Alternative 1 long-term projects, except that the ambulatory care center would be located at the potential new SFVAMC Mission Bay Campus under Alternative 2 (see Tables 2-1 and 2-2 and Figures 2-1 and 2-2). Therefore, the impacts of Alternative 2 long-term projects at the existing Campus would be the same as or less than the impacts of Alternative 1 long-term projects (Tables 3.14-7 and 3.14-8). The impact discussion below focuses on the impacts that may result from construction and operation of the ambulatory care center, research building, and associated parking garages at the potential new Campus, as proposed as part of Alternative 2, Phase 2.

Construction

Construction impacts of Alternative 2 long-term projects would be similar to those of Alternative 1 near-term and long-term projects; therefore, any impacts on utility systems resulting from construction would range in significance from no impact to minor impact.

Operation

Water Supply

Based on demand data provided in the *San Francisco Public Utilities Commission Wholesale Customer Water Demand Projections Technical Report* (SFPUC, 2004), the total water demand associated with Alternative 2 long-term projects at the potential new SFVAMC Mission Bay Campus through 2023 is projected to be 21.8 million gallons per year (0.060 mgd). However, should the SFVAMC implement water conservation measures to achieve the VA SSPP's maximum reduction targets, the total water demand for Alternative 2 long-term projects at the potential new campus would be 16.1 million gallons per year (0.044 mgd).

The overall total (existing, short-term, and long-term) projected water demand at both campuses under Alternative 2 is estimated to be 76.1 million gallons per year (0.209 mgd). However, with implementation of conservation measures for existing, short-term, and long-term project water demands to meet the VA SSPP's maximum targets, the total projected water demand for both campuses under Alternative 2 would be 56.3 million gallons per year (0.154 mgd).

SFPUC has confirmed that implementation of the potential new SFVAMC Mission Bay Campus is included in SFPUC's 2010 UWMP (Petrick, pers. comm., 2011) and that the existing water supply would be able to support

Table 3.14-7: Projected Water Demands of Alternative 2 Long-Term Projects through 2023 (at the SFVAMC Fort Miley Campus) and through 2027 (at the SFVAMC Mission Bay Campus)

Projection Type	Increase in Water Demand[1] (million gallons)		Total Water Demand[2] (million gallons)	
	Per Year	Per Day	Per Year	Per Day
Water Demand Increase at the SFVAMC Fort Miley Campus (through 2023)[3]				
Without VA SSPP Reduction Target	4.34	0.012	54.33	0.149
With VA SSPP Reduction Target	3.21	0.009	40.20	0.110
Water Demand Increase at the Potential New SFVAMC Mission Bay Campus (through 2027)[4]				
Without VA SSPP Reduction Target	*	*	21.8	0.060
With VA SSPP Reduction Target	*	*	16.1	0.044
Totals				
Without VA SSPP Reduction Target—through 2027 at Both Campuses			**76.1**	**0.209**
With VA SSPP Reduction Target—through 2027 at Both Campuses			**56.3**	**0.154**

Source: Water demand calculated by AECOM in 2012; SFPUC, 2004
Notes:
SFVAMC = San Francisco Veterans Affairs Medical Center; VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*
* There are no existing SFVAMC water demands at the potential new SFVAMC Mission Bay Campus.
1 The increase in water demand represents the water demand associated with long-term projects only.
2 The total water demand represents existing water demands plus estimated water demands associated with near-term and long-term projects.
3 These values are based on an increase of 69,700 square feet as proposed as part of Alternative 2 long-term projects (which does not include the ambulatory care center at the SFVAMC Fort Miley Campus) and a rate of 62.3 gallons/square foot/year.
4 These values are based on an increase of 350,000 square feet as proposed as part of Alternative 2 long-term projects (not including new parking, as parking does not have an associated water demand) and a rate of 62.3 gallons/square foot/year.

the facilities under Alternative 2. Furthermore, the construction and operation of new water distribution lines for this new facility would be completed in compliance with federal, State, and local regulatory requirements, minimizing the potential for adverse impacts. Therefore, operational impacts of Alternative 2 long-term projects on water supply would be minor.

Wastewater and Stormwater

The wastewater generation of long-term projects under Alternative 2 through 2023 is expected to be an estimated 17.0 million gallons per year (0.047 mgd) at the potential new SFVAMC Mission Bay Campus without implementation of the VA SSPP's reduction target and 12.6 million gallons per year (0.034 mgd) with implementation. Because the facilities would be new, construction of additional wastewater lines to service new buildings and new stormwater systems would likely be required as part of Alternative 2 long-term projects at the potential new SFVAMC Mission Bay Campus. The new wastewater lines would be constructed and operated in compliance with federal, State, and local regulatory requirements, minimizing the potential for significant environmental impacts.

Table 3.14-8: Projected Wastewater Generation Rates for Alternative 2 Long-Term Projects through 2023 (at the SFVAMC Fort Miley Campus) and through 2027 (at the SFVAMC Mission Bay Campus)

Projection Type	Increase in Wastewater Generation[1] (million gallons)		Total Wastewater Generation[2] (million gallons)	
	Per Year	Per Day	Per Year	Per Day
Wastewater Generation Increase at the SFVAMC Fort Miley Campus (through 2023)[3]				
Without VA SSPP Reduction Target	3.4	0.009	42.4	0.116
With VA SSPP Reduction Target	2.5	0.007	31.4	0.086
Wastewater Generation Increase at the Potential New SFVAMC Mission Bay Campus (through 2027)[4]				
Without VA SSPP Reduction Target	*	*	17.0	0.047
With VA SSPP Reduction Target	*	*	12.6	0.034
Totals				
Without VA SSPP Reduction Target—through 2027 at Both Campuses			**59.4**	**0.163**
With VA SSPP Reduction Target—through 2027 at Both Campuses			**43.9**	**0.120**

Source: Wastewater generation calculated by AECOM in 2012 assuming 78 percent of water demand = wastewater generated; SFVAMC, 2012.

Notes:

SFVAMC = San Francisco Veterans Affairs Medical Center; VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*

* There is no existing SFVAMC wastewater generation at the potential new SFVAMC Mission Bay Campus.

1 The increase in wastewater generation represents the wastewater associated with long-term projects only.

2 The total wastewater generation represents existing wastewater plus estimated wastewater generation associated with near-term and long-term projects.

3 These values are based on an increase of 69,700 square feet as proposed as part of Alternative 2 long-term projects (which does not include the ambulatory care center at the SFVAMC Fort Miley Campus).

4 These values are based on an increase of 350,000 square feet as proposed as part of Alternative 2 long-term projects (not including new parking, as parking does not generate wastewater).

The overall total (existing, short-term, and long-term) estimated wastewater generation demand at both campuses under Alternative 2 is estimated to be 59.4 million gallons per year (0.163 mgd). With implementation of conservation measures to meet the VA SSPP's maximum targets for existing, short-term, and long-term project wastewater generation as part of Alternative 2, the estimated total wastewater generation for both campuses would be 43.9 million gallons per year (0.120 mgd). It should be noted, however, that wastewater from the two campuses would be treated at different wastewater treatment plants; wastewater from the SFVAMC Fort Miley Campus would be treated at the OSP and wastewater at the potential new SFVAMC Mission Bay Campus would be treated at the SEP.

The long-term projects under Alternative 2 would involve the addition of landscaping and sustainable features such as green roofs as part of building design, which would reduce the amount of impervious surface on the site. These features would also reduce the amount of nonpermeable surfaces, which would improve ground/soil absorption of runoff and control erosion and pollution, as well as improve stormwater runoff quality. The use of

energy dissipaters to prevent concentrated flows would also minimize the impact of stormwater flows. Site drainage would flow via at-grade catch basins and area drains to landscaped areas, and to underground gravity lines. In addition, the buildings and the site contours would be designed to minimize stormwater runoff to the extent practicable. Therefore, operational impacts of Alternative 2 long-term projects on wastewater and stormwater would be minor.

Electricity and Natural Gas

The potential new SFVAMC Mission Bay Campus proposed under Alternative 2 would have an anticipated electricity demand of approximately 11,411MWh per year and an estimated natural gas demand of 68,655MMBtu per year from 2024 through 2027 (Table 3.14-9). With the VA SSPP's reduction target, anticipated electricity demand is projected to be 8,033 MWh per year and estimated natural gas demand would be 48,333MMBtu per year. Total electricity demand for the SFVAMC, including existing demand and demand for near-term and long-term projects, is projected to be 38,539 MWh per year and natural gas demand is projected to be 231,877 MMBtu per year. With the SSPP Reduction Target, electricity demand is projected to be 34,217 MWh per year and estimated natural gas demand is projected to be 205,877 MMBtu per year.

Table 3.14-9: Projected Electricity and Natural Gas Demands of Alternative 2 Long-Term Projects through 2023 (at the SFVAMC Fort Miley Campus) and through 2027 (at the SFVAMC Mission Bay Campus)

Projection Type	Electricity Demand per Year (MWh)		Natural Gas Demand per Year (MMBtu)	
	Increase in Demand	Total Demand	Increase in Demand	Total Demand
Electricity and Natural Gas Demand at the SFVAMC Fort Miley Campus (through 2023)				
Without VA SSPP Reduction Target	1,283	27,128	7,718	163,222
With VA SSPP Reduction Target	903	26,184	5,433	157,544
Electricity and Natural Gas Demand at the Potential New SFVAMC Mission Bay Campus (through 2027)				
Without VA SSPP Reduction Target	11,411	11,411*	68,655	68,655*
With VA SSPP Reduction Target	8,033	8,033*	48,333	48,333*
Totals				
Without VA SSPP Reduction Target—through 2027 at Both Campuses	12,694	38,539*	76,373	231,877*
With VA SSPP Reduction Target—through 2027 at Both Campuses	8,936	34,217*	53,766	205,877*

Source: Electrical and natural gas demands calculated by AECOM in 2012; Bay Area Air Quality Management District Greenhouse Gas Model Version 1.1.9.

Notes:

MMBtu = million metric British thermal units; MWh = megawatt-hours; SFVAMC = San Francisco Veterans Affairs Medical Center; VA SSPP = *Department of Veteran Affairs Strategic Sustainability Performance Plan*

* There is no existing SFVAMC-related electricity or natural gas demand at the potential new Mission Bay Campus.

To support this demand, Alternative 2 long-term projects would require the installation of additional distribution lines to provide the potential new SFVAMC Mission Bay Campus with electrical and natural gas service. PG&E has indicated that it would have sufficient capacity with the existing electricity and natural gas infrastructure to support the new Campus available in the vicinity (Ketcherside, pers. comm., 2011b). Nonetheless, because the facilities would be new, the construction of distribution lines to service the new buildings would likely be required as part of Alternative 2 long-term projects at the potential new Campus. The new electric and natural gas distribution lines would be constructed and operated in compliance with federal, State, and local regulatory requirements, minimizing the potential for adverse impacts. Therefore, operational impacts of Alternative 2 long-term projects on electricity and natural gas are anticipated to be minor.

Alternative 3: No Action Alternative

Near-Term and Long-Term Projects

Construction

Under Alternative 3, there would be no new construction or retrofitting of existing buildings. Therefore, no construction-related impacts on water supply, wastewater and stormwater, or electricity and natural gas infrastructure would occur.

Operation

Under Alternative 3, the LRDP would not be implemented, and the existing facility would continue to function at its current capacity. Therefore, no impacts on existing water supply, wastewater and stormwater, or electricity and natural gas infrastructure would occur.

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