H. GREENHOUSE GAS EMISSIONS

Section 4.H, Greenhouse Gas Emissions, describes global climate change, greenhouse gas (GHG) emissions, and the existing regulatory framework governing GHG emissions, and analyzes the impacts related to GHGs associated with development of the Proposed Project. The GHG emissions analysis is based on the Proposed Project's compliance with plans and policies adopted for the purpose of reducing GHG emissions as set forth in the City's aggressive local GHG reduction plan, *Strategies to Address Greenhouse Gas Emissions*, recognized by the Bay Area Air Quality Management District (BAAQMD) as meeting the criteria of a qualified GHG Reduction Strategy.

ENVIRONMENTAL SETTING

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much as a greenhouse does. The accumulation of GHGs contributes to global climate change. The primary GHGs, or climate pollutants, are carbon dioxide (CO_2), black carbon, methane (CH_4), nitrous oxide (N_2O), ozone, and water vapor.

Individual development projects contribute to the cumulative effects of climate change by emitting GHGs during demolition, construction, and operational phases. While the presence of some of the primary GHGs in the atmosphere is naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within the earth's atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas emissions of CH_4 result from off-gassing associated with agricultural practices and landfills. Black carbon has emerged as a major contributor to global climate change, possibly second only to CO_2. Black carbon is produced naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass.[1] N_2O is a by-product of various industrial processes. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. GHGs are typically reported in "carbon dioxide-equivalent" measures (CO_2E).[2]

[1] Center for Climate and Energy Solution, What is Black Carbon?, April 2010. Available online at http://www.c2es.org/docUploads/what-is-black-carbon.pdf. Accessed March 3, 2016.

[2] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in terms of "carbon dioxide-equivalents," which presents a weighted average based on each gas's heat absorption (or "global warming") potential.

There is international scientific consensus that human-caused increases in GHGs contribute to global warming and, thus, climate change. Many impacts resulting from climate change, including sea level rise, increased fires, floods, severe storms, and heat waves, already occur and will only become more severe and costly.[3] Secondary effects of climate change likely include impacts to agriculture, the State's electricity system, and native freshwater fish ecosystems; an increase in the vulnerability of levees such as in the Sacramento-San Joaquin Delta; changes in disease vectors; and changes in habitat and biodiversity.[4,5]

GREENHOUSE GAS EMISSION ESTIMATES AND ENERGY PROVIDERS IN CALIFORNIA

The California Air Resources Board (CARB) estimated that in 2013 California produced about 459.3 million gross metric tons of CO_2E ($MMTCO_2E$).[6,7] The CARB found that transportation is the source of 37 percent of the State's GHG emissions, followed by electricity generation (both in-State generation and imported electricity) at 20 percent, and industrial sources at 23 percent. Commercial and residential fuel use (primarily for heating) accounted for 12 percent of GHG emissions.[8] In San Francisco, motorized transportation and natural gas sectors were the two largest sources of GHG emissions, accounting for approximately 35 percent (2.0 million $MTCO_2E$) and 27 percent (1.5 million $MTCO_2E$), respectively, of San Francisco's 4.75 million $MTCO_2E$ emitted in 2012.[9] Electricity consumption (building operations and transit) accounts for approximately 21 percent (1.1 million $MTCO_2E$) of San Francisco's GHG emissions.[10]

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3 Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basis, Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. Available online at http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed March 3, 2016.

4 Ibid.

5 California Climate Change Center, *Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California*, July 2012, p. 1. Available online at http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf. Accessed March 3, 2016.

6 California Air Resources Board (CARB), *California Greenhouse Gas Inventory for 2000-2013 - by Category as Defined in the Scoping Plan*. Available online at https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2013/ghg_inventory_scopingplan_2000-13_20150831.pdf. Accessed March 3, 2016.

7 One metric tonne (MT) is 1,000 kilograms, or 2,204.6 pounds, or 1.1 short tons. One short ton or U.S. ton is 2,000 pounds. The abbreviation for "million metric tonnes" is MMT; thus, million metric tons of CO_2-equivalent ($MMTCO_2E$).

8 CARB, California Greenhouse Gas Inventory – 2015 Edition, June 2015. Available online at http://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed March 3, 2016.

9 San Francisco Department of the Environment, *Technical Review of the 2012 Community-wide GHG Inventory for the City and County of San Francisco*, January 21, 2015. Available online at http://sfenvironment.org/download/2012-community-greenhouse-gas-inventory-3rd-party-verification-memo-january-2015. Accessed May 26, 2016.

10 Ibid.

Electricity in San Francisco is primarily provided by the Pacific Gas and Electricity Company (PG&E) and the San Francisco Public Utilities Commission (SFPUC). In 2012, electricity consumption in San Francisco was approximately 6.0 million megawatt-hours (MWh). Of this total, PG&E produced approximately 71 percent of electricity distributed (4.2 million MWh; about 81 percent of San Francisco's electricity-driven GHG emissions), and the SFPUC produced approximately 16 percent of the electricity distributed (0.9 million MWh, about 0 percent of San Francisco's electricity-driven GHG emissions).[11]

PG&E's 2015 power mix was as follows: 25 percent natural gas, 23 percent nuclear, 30 percent eligible renewables (described below), 6 percent large hydroelectric, and 17 percent unspecified power.[12]

The SFPUC operates three hydroelectric power plants in association with San Francisco's Hetch Hetchy water supply system, and provides electrical power to Muni, City buildings, and a limited number of other commercial accounts in San Francisco. Electricity generated by the Hetch Hetchy system achieved net zero GHG emissions for year 2012.[13]

REGULATORY FRAMEWORK

STATE

Executive Orders S-3-05 and B-30-15

Executive Order (EO) S-3-05 sets forth a series of target dates by which Statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million $MTCO_2E$); by 2020, reduce emissions to 1990 levels (approximately 427 million $MTCO_2E$); and by 2050, reduce emissions to 80 percent below 1990 levels (approximately 85 million $MTCO_2E$). California produced about 452 million $MTCO_2E$ in 2010, thereby meeting the 2010 target date to reduce GHG emissions to 2000 levels.

EO B-30-15 set an additional, interim Statewide GHG reduction target of 40 percent below 1990 levels to be achieved by 2030. The purpose of this interim target is to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050.[14] EO B-30-15 also

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[11] Ibid.

[12] Pacific Gas & Electric (PG&E), PG&E's 2015 Electric Power Mix. Available online at http://www.pge.com/en/about/environment/pge/cleanenergy/index.page. Accessed May 26, 2016.

[13] San Francisco Department of the Environment, *San Francisco Climate Action Strategy*, 2013 Update. Available online at http://sfenvironment.org/sites/default/files/engagement_files/sfe_cc_ClimateActionStrategyUpdate2013.pdf. Accessed May 31, 2016.

[14] Governor's Office, *Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America*, April 29, 2015. Available online at https://www.gov.ca.gov/news.php?id=18938. Accessed March 3, 2016.

requires all State agencies with jurisdiction over sources of GHG emissions to implement measures within their statutory authority to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets.

Assembly Bill 32 and California Climate Change Scoping Plan

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the California Global Warming Solutions Act. AB 32 requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective Statewide GHG emissions are reduced to 1990 levels by 2020.

Pursuant to AB 32, CARB adopted the *Climate Change Scoping Plan* (*Scoping Plan*) in December 2008, outlining measures to meet the 2020 GHG reduction limits. In order to meet the goals of AB 32, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels (approximately 15 percent below 2008 levels).[15] The *Scoping Plan* estimates a reduction of 174 million $MTCO_2E$ from transportation, energy, agriculture, forestry, and other high global warming sectors (see Table 4.H.1: GHG Reductions from the AB 32 Scoping Plan Categories).[16]

The AB 32 *Scoping Plan* also anticipates that actions by local governments will result in reduced GHG emissions because local governments have the primary authority to plan, zone, approve, and permit development to accommodate population growth and the changing needs of their jurisdictions.[17] The *Scoping Plan* also relies on the requirements of Senate Bill (SB) 375 (discussed below) to align local land use and transportation planning for achieving GHG reductions.

The *Scoping Plan* must be updated every five years to evaluate AB 32 policies and ensure that California is on track to achieve the 2020 GHG reduction goal. In 2014, CARB released the *First Update to the Climate Change Scoping Plan (First Update)*, which builds upon the initial scoping plan with new strategies and recommendations. The *First Update* identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. This update defines CARB's climate change priorities for the next five years and sets the groundwork to reach long-term goals set forth in EO S-3-05. The *First Update* highlights California's progress toward meeting the near-term 2020

[15] CARB, *California's Climate Plan: Fact Sheet*. Available online at http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf. Accessed March 3, 2016.
[16] Ibid.
[17] CARB, *Climate Change Scoping Plan*, December 2008, p. 27. Available online at http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed March 3, 2016.

Table 4.H.1: GHG Reductions from the AB 32 Scoping Plan Categories[18,19]

GHG Reduction Measures by Sector	GHG Reductions ($MMTCO_2E$)
Transportation Sector	62.3
Electricity and Natural Gas	49.7
Industry	1.4
Landfill Methane Control Measure	1
Forestry	5
High Global Warming Potential GHGs	20.2
Additional Reductions Needed to Achieve the GHG Cap	34.4
Other Recommended Measures	
Government Operations	1-2
Agriculture – Methane Capture at Large Dairies	1
Water	4.8
Green Buildings	26
High Recycling/Zero Waste	9
Total Reductions Counted Towards 2020 Target	**216.8-217.8**

Note: $MMTCO_2E$ = million metric tonnes of CO_2E (carbon dioxide equivalent)

GHG emission reduction goals in the initial scoping plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.[20]

Senate Bill 375

The *Scoping Plan* also relies on the requirements of SB 375 (Chapter 728, Statutes of 2008), also known as the Sustainable Communities and Climate Protection Act of 2008, to reduce carbon emissions from land use decisions. SB 375 requires regional transportation plans developed by each of the State's 18 Metropolitan Planning Organizations to incorporate a "sustainable communities strategy" in each regional transportation plan that will then achieve GHG emission reduction targets set by CARB. For the Bay Area, the per-capita GHG emission reduction target

[18] Ibid.
[19] CARB, *California's Climate Plan: Fact Sheet*. Available online at http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf. Accessed March 3, 2016.
[20] CARB, *First Update to the Climate Change Scoping Plan*, May 2014. Available online at http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed March 3, 2016.

is a 7 percent reduction by 2020 and a 15 percent reduction by 2035 from 2005 levels.[21] *Plan Bay Area*, the Metropolitan Transportation Commission's regional transportation plan, adopted in July 2013, is the region's first plan subject to SB 375 requirements.[22]

Senate Bills 1078, 107, X1-2, and 350 / Executive Orders S-14-08 and S-21-09

California established aggressive renewable portfolio standards under SB 1078 (Chapter 516, Statutes of 2002) and SB 107 (Chapter 464, Statutes of 2006), which require retail sellers of electricity to provide at least 20 percent of their electricity supply from renewable sources by 2010. EO S-14-08 (November 2008) expanded the State's renewable portfolio standard from 20 percent to 33 percent of electricity from renewable sources by 2020. In September 2009, Governor Schwarzenegger continued California's commitment to the renewable portfolio standard by signing EO S-21-09, which directed CARB to enact regulations to help California meet the renewable portfolio standard goal of 33 percent renewable energy by 2020.[23]

In April 2011, Governor Brown signed SB X1-2 (Chapter 1, Statutes of 2011) codifying the GHG reduction goal of 33 percent by 2020 for energy suppliers. This renewable portfolio standard preempts CARB's 33 percent renewable sources electricity standard and applies to all electricity suppliers (not just retail sellers) in the State, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. Under SB X1-2, all of these entities must adopt the new renewable portfolio standard goals of 20 percent of retail sales from renewable sources by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.[24] Eligible renewable sources include geothermal, ocean wave, solar photovoltaic, and wind, but exclude large hydroelectric (30 MW or more). Therefore, because the SFPUC receives more than 67 percent of its electricity from large hydroelectric facilities, the remaining electricity provided by the SFPUC is required to be 100 percent renewable.[25] SB 350 (Chapter 547, Statutes of 2015), signed by Governor Brown in October 2015, dramatically increased the stringency of the renewable portfolio standard. SB 350 establishes a renewable

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[21] CARB, *Executive Order No. G-11-024: Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375*, February 2011. Available online at http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf. Accessed March 3, 2016.

[22] Association of Bay Area Governments and Metropolitan Transportation Commission, *Plan Bay Area*, adopted July 18, 2013. Available online at http://planbayarea.org/plan-bay-area.html. Accessed on March 3, 2016.

[23] California Public Utilities Commission, *RPS Program Overview*, June 2015. Available online at http://www.cpuc.ca.gov/RPS_Overview/. Accessed March 3, 2016.

[24] Ibid.

[25] San Francisco Public Utilities Commission, *Approval of the Enforcement Program for the California Renewable Energy Resources Act*, December 13, 2011. Available online at https://infrastructure.sfwater.org/fds/fds.aspx?lib=SFPUC&doc=741114&data=285328890. Accessed March 3, 2016.

portfolio standard target of 50 percent by 2030, along with interim targets of 40 percent by 2024 and 45 percent by 2027.

REGIONAL

The BAAQMD is responsible for attaining and maintaining Federal and State air quality standards in the San Francisco Bay Area Air Basin, as established by the Federal Clean Air Act and the California Clean Air Act, respectively. The Clean Air Act and the California Clean Air Act require plans to be developed for areas that do not meet air quality standards, generally. The most recent air quality plan, the *Bay Area 2010 Clean Air Plan* (*Clean Air Plan*), includes a goal of reducing GHG emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2035, and 80 percent below 1990 levels by 2050.[26]

In addition, the BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin; the program includes GHG-reduction measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative energy sources.[27]

The BAAQMD CEQA Air Quality Guidelines also assists lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality. The BAAQMD advises lead agencies to consider adopting a greenhouse gas reduction strategy capable of meeting AB 32 goals and then reviewing projects for compliance with the greenhouse gas reduction strategy.[28] This is consistent with the approach to analyzing GHG emissions in the CEQA Guidelines Section 15183.5.

LOCAL

San Francisco Greenhouse Gas Reduction Ordinance

In May 2008, the City adopted Ordinance No. 81-08, which amended the San Francisco Environment Code to establish GHG emissions targets and require departmental action plans and to authorize the San Francisco Department of the Environment to coordinate efforts to meet these targets. The City ordinance establishes the following GHG emissions reduction limits and target

[26] Bay Area Air Quality Management District (BAAQMD), *Clean Air Plan*, September 2010. Available online at http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans. Accessed March 3, 2016.

[27] BAAQMD, *Climate Protection Program*. Available online at http://www.baaqmd.gov/plans-and-climate/climate-protection/climate-protection-program. Accessed May 26, 2016.

[28] BAAQMD, *California Environmental Quality Act Air Quality Guidelines*, p. 4-7, May 2012. Available online http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en. Accessed March 3, 2016.

dates by which to achieve them: determine 1990 Citywide GHG emissions by 2008, the baseline level, with reference to which target reductions are set; reduce GHG emissions by 25 percent below 1990 levels by 2017; reduce GHG emissions by 40 percent below 1990 levels by 2025; and reduce GHG emissions by 80 percent below 1990 levels by 2050.[29] The City's GHG reduction targets are consistent with—in fact, more ambitious than—those set forth in Governor Brown's recent EO B-30-15 by targeting a 40 percent reduction by 2025 rather than a 40 percent reduction by 2030.

San Francisco Greenhouse Gas Reduction Strategy

San Francisco has developed a number of plans and programs to reduce the City's contribution to global climate change and to meet the goals of the City's Greenhouse Gas Reduction Ordinance. San Francisco's *Strategies to Address Greenhouse Gas Emissions*[30] documents the City's actions to pursue cleaner energy, energy conservation, alternative transportation and solid waste policies. For instance, the City has implemented mandatory requirements and incentives that have measurably reduced GHG emissions including, but not limited to, increasing the energy efficiency of new and existing buildings, installing solar panels on building roofs, implementing a green building strategy, adopting a zero waste strategy, adopting a construction and demolition debris recovery ordinance, creating a solar energy generation subsidy, incorporating alternative fuel vehicles in the City's transportation fleet (including buses), and adopting a mandatory recycling and composting ordinance. The strategy also includes 30 specific regulations for new development that would reduce a project's GHG emissions. These GHG reduction actions have resulted in a 23.3 percent reduction in GHG emissions in 2012 compared to 1990 levels,[31] exceeding the year 2020 reduction goals in the BAAQMD's Clean Air Plan, EOs S-3-05 and B-30-15, and AB 32.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE THRESHOLDS

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been modified

[29] City and County of San Francisco, *Greenhouse Gas Emissions Targets and Departmental Action Plans*, May 2008. Available online at http://environment.sanfranciscocode.org/9/. Accessed May 26, 2016.

[30] San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco*, November 2010. Available online at http://sfmea.sfplanning.org/GHG_Reduction_Strategy.pdf. Accessed March 3, 2016.

[31] ICF International, *Technical Review of the 2012 Community-wide Inventory for the City and County of San Francisco*, January 21, 2015. Available online at http://sfenvironment.org/download/2012-community-greenhouse-gas-inventory-3rd-party-verification-memo-january-2015. Accessed May 26, 2016.

by the San Francisco Planning Department. The Proposed Project would have a potentially significant impact related to GHG emissions if the project were to:

H.1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,

H.2 Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

APPROACH TO ANALYSIS

GHG emissions and global climate change represent cumulative impacts. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects and activities has contributed and will contribute to global climate change and its associated environmental impacts.

The BAAQMD has prepared guidelines and methodologies for analyzing GHGs. These guidelines are consistent with CEQA Guidelines Sections 15064.4 and 15183.5, which address the analysis and determination of significant impacts from a proposed project's GHG emissions. CEQA Guidelines Section 15064.4 allows lead agencies to rely on a qualitative analysis to describe GHG emissions resulting from a project. CEQA Guidelines Section 15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of greenhouse gases and describes the required contents of such a plan. Accordingly, San Francisco has prepared its own greenhouse gas reduction strategy (described above), which the BAAQMD has reviewed and concluded that "aggressive GHG reduction targets and comprehensive strategies like San Francisco's help the Bay Area move toward reaching the State's AB 32 goals, and also serve as a model from which other communities can learn."[32]

The following analysis of the Proposed Project's impact on climate change focuses on the project's contribution to cumulatively significant GHG emissions. Because no individual project could emit GHGs at a level that could result in a significant impact on the global climate, this analysis is in a cumulative context, and this section does not include an individual project-specific impact statement.

[32] BAAQMD, letter from J. Roggenkamp to B. Wycko, San Francisco Planning Department, October 28, 2010. Available online at http://www.sf-planning.org/ftp/files/MEA/GHG-Reduction_Letter.pdf. Accessed November 2, 2015.

PROJECT FEATURES

The Proposed Project entails the development of the 28-Acre Site and the Illinois Parcels and would include residential, commercial-office, and retail/arts/light-industrial (RALI) uses. Under the provisions of the proposed SUD, the Proposed Project would provide a flexible land use program, under which certain parcels could be developed for primarily commercial-office or residential uses. In addition, two parcels on the project site that would be designated for district structured parking, Parcels C1 and C2, could be developed with either residential or commercial-office uses depending on future market demand and future transportation network changes. Project construction is anticipated to commence in 2018 and would be phased over an approximately 11-year period, concluding in 2029.

The Proposed Project would be a high-density, mixed-use infill development in a transit-oriented area of the City. Under the Maximum Residential Scenario, 1,142 Class I and 514 Class II bicycle parking spaces would be provided. Class II bicycle parking would also be provided at key entrance areas of the major open spaces. Under the Maximum Commercial Scenario, 995 Class I and 475 Class II bicycle parking spaces would be provided. Both scenarios would include construction of Class 2 facilities (bicycle lanes) and Class 3 facilities (shared-lane markings and signage) on 20th, 22nd, and Maryland streets. A Class 1 separated bicycle and pedestrian facility would be provided along the Bay Trail and Blue Greenway the length of the project site along the shoreline.

The Proposed Project would include a Transportation Plan, which would include the establishment of a Transportation Management Association (TMA) to manage implementation of Transportation Demand Management (TDM) measures at the site. Through the TMA, the Proposed Project would implement a number of amenities and education strategies regarding transportation choices, including real-time occupancy data for shared parking facilities, on-street carshare spaces, unbundled parking for residents, preferential treatment for high-occupancy vehicles, a website, brochures and a newsletter, as well as a dedicated Transportation Coordinator staff person.

The Proposed Project would comply with San Francisco Green Building Requirements for energy efficiency in new buildings. Energy-efficient appliances and energy-efficient lighting would be installed in the three rehabilitated historic buildings. At least 15 percent of the roof area of all proposed buildings (excluding existing Buildings 2, 12, and 21) would include roof-mounted or building-integrated solar photovoltaic (PV) systems and/or roof-mounted solar thermal hot water systems. However, the project sponsor estimates that up to 6.5 MW of solar PV panel arrays

could be located on the 600,000 sq. ft. of available unshaded roof area.[33] Over 6 MW of solar panels could offset the equivalent of 25 percent of the Proposed Project's total energy cost, assuming that 70 percent of available unshaded roof area is devoted to PV due to maintenance and other rooftop space requirements.[34]

The Proposed Project includes the installation of a recycled water system, and buildings would use recycled water for all uses authorized by the State. The Proposed Project would include the diversion and reuse of graywater and rainwater for toilet and urinal flushing and irrigation for buildings larger than 250,000 square feet. Although the City does not currently have an available source of recycled water, the project sponsors would install temporary recycled water systems to provide non-potable water for activities such as irrigation, cooling, and/or toilet and urinal flushing.

The Proposed Project would use Low Impact Design features to decrease storm water flow in accordance with San Francisco Green Building Requirements, Stormwater Management Ordinance, and the Stormwater Design Guidelines. No street trees would be removed, and new street trees would be planted along designated street segments, for a total of approximately 108 street trees. Street trees would be planted in accordance with Public Works Code Section 806(d), except for areas around the historic core, where Secretary of the Interior Standards for the Treatment of Historic Properties would be applied.

Other GHG-reducing measures include water-conserving interior features, convenient recycling and composting, and other features consistent with San Francisco's requirements. The project sponsor has prepared a Sustainability Plan that summarizes how the Pier 70 Mixed-Use District Project would attain social, economic, and environmental sustainability over the course of the Proposed Project's design, implementation, and operation.[35] Many of these features would serve to reduce energy and water consumption, which, in turn, would reduce GHG emissions. (Reductions in water use save energy that would otherwise be used to transport and treat the water.)

[33] See Memorandum to Kelly Pretzer, Forest City, from Melissa Higbee, AECOM, re: Assumptions for Pier 70 Energy Calculations, November 25, 2015, pp. 5-7.
[34] Forest City, *Pier 70 Sustainability Plan*, Draft, January 2016, p. 60.
[35] Forest City, *Pier 70 Sustainability Plan*, Draft, January 2016.

IMPACT EVALUATION

Impact C-GG-1: The Proposed Project would generate GHG emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing GHG emissions. (*Less than Significant*)

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases. Direct operational emissions include GHG emissions from new vehicle trips and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers; energy required to pump, treat, and convey water; and emissions associated with waste removal, disposal, and landfill operations.

The Proposed Project would increase the intensity of use of the site through development of new residential, commercial, and RALI uses. Therefore, the Proposed Project would contribute to annual long-term increases in GHGs as a result of approximately 31,016 daily vehicle trips under the Maximum Residential Scenario and 34,790 daily vehicle trips under the Maximum Commercial Scenario (refer to Section 4.E, Transportation and Circulation, for further information regarding vehicle trip generation). Additional long-term increases in GHGs from residential and commercial operations associated with energy use, water use and wastewater treatment, and solid waste disposal would also occur. Construction activities would also result in increases in GHG emissions over the approximately 11-year construction period.

The Proposed Project would be subject to regulations adopted to reduce GHG emissions as identified in the GHG reduction strategy. All new buildings and additions to existing buildings under the Proposed Project (including those on Port property) would comply with the San Francisco Green Building Ordinance requirements of the San Francisco Green Building Code. As discussed below, compliance with the applicable regulations would reduce the project's GHG emissions related to transportation, energy use, waste disposal, wood burning, and use of refrigerants.

The Proposed Project would be subject to and would comply with GHG reduction measures as shown in Table 4.H.2: Regulations Applicable to the Proposed Project. Applicable regulations in Table 4.H.2 are organized by GHG sectors (e.g., transportation, energy efficiency, renewable energy, etc.) to provide direct correlation between the Proposed Project's sources of GHG emissions and regulations that would reduce those emissions. Both the Maximum Residential Scenario and the Maximum Commercial Scenario and each of the sewer and grading options would comply with San Francisco's Greenhouse Gas Reduction Strategy, and there is no substantive difference between the Maximum Residential Scenario and the Maximum Commercial Scenario with regard to GHG emissions; however, scenario-specific alterations in design, if applicable to GHG-related regulations, are shown in Table 4.H.2, pp. 4.H.13-4.H.28.

Table 4.H.2: Regulations Applicable to the Proposed Project

Regulation	Requirements	Remarks
Transportation Sector		
Commuter Benefits Ordinance (San Francisco Environment Code Section 427)	All employers of 20 or more employees nationwide must provide at least one of the following benefit programs: (1) A Pre-Tax Election consistent with 26 U.S.C. § 132(f), allowing employees to elect to exclude from taxable wages and compensation, employee commuting costs incurred for transit passes or vanpool charges, or (2) Employer Paid Benefit whereby the employer supplies a transit or vanpool subsidy for each Covered Employee. The subsidy must be at least equal in value to the current cost of the Muni Fast Pass including BART travel, or (3) Employer Provided Transportation furnished by the employer at no cost to the employee in a vanpool or bus, or similar multi-passenger vehicle operated by or for the employer.	All employers of the proposed commercial uses with 20 or more employees nationwide are required to provide at least one of the benefit programs set forth in the Commuter Benefits Ordinance.
Emergency Ride Home Program	All San Francisco companies are eligible to register for the Emergency Ride Home program. Employers must register annually. Once registered, all San Francisco employees of the company are eligible to request reimbursement.	Participation in the Emergency Ride Home Program would be part of the Transportation Demand Management (TDM) Program, and all San Francisco employees of those companies would be eligible for the benefits and services provided by the program.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Transportation Management Programs (San Francisco Planning Code Section 163)	Requires new buildings or additions over a specified size (buildings >25,000 square feet or 100,000 square feet depending on the use and zoning district) within certain zoning districts (including downtown and mixed-use districts in the City's eastern neighborhoods and south of market) to implement a Transportation Management Program and provide on-site transportation management brokerage services for the life of the building.	Prior to issuance of a temporary permit of occupancy, the project sponsors shall execute an agreement with the Director of Planning to implement an on-site transportation brokerage service and transportation management program. The Proposed Project would include a Transportation Plan intended to manage transportation demands and to encourage sustainable transportation choices, consistent with the City of San Francisco's Transit First, Better Streets, Climate Action, and Transportation Sustainability Plans and Policies. The Transportation Plan would include the establishment of a Transportation Management Association (TMA) to manage implementation of Transportation Demand Management (TDM) measures at the site. Through the TMA, the Proposed Project would implement a number of amenities and education strategies regarding transportation choices, including real-time occupancy data for shared parking facilities, on-street carshare spaces, unbundled parking for residents, preferential treatment for high-occupancy vehicles, a website, production of brochures and newsletter, as well as a dedicated Transportation Coordinator staff person.
Transportation Sustainability Fee (San Francisco Planning Code Section 411A)	Establishes Citywide fees for all new development. Fees based on a proportion of the gross area of the project based on the type of use. Fees are paid to the Department of Building Inspection and provided to the San Francisco Municipal Transportation Agency and regional providers to improve transit services.	Developers of future buildings at the project site would comply with this requirement by paying the Transportation Sustainability Fee for all applicable economic activity categories or subcategories.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Jobs-Housing Linkage Program (San Francisco Planning Code Section 413)	The Jobs-Housing Program found that new large scale developments attract new employees to the City who require housing. The program is designed to provide housing for those new uses within San Francisco, thereby allowing employees to live close to their place of employment. The program requires a developer to pay a fee or contribute land suitable for housing to a housing developer or pay an in-lieu fee.	The Proposed Project would be mixed-use and would include residential units on-site. Under the Maximum Residential Scenario, up to 3,025 residential units, 1,102,250 gsf of commercial space, and 479,980 gsf of RALI space. Under the Maximum Commercial Scenario, up to 1,645 residential units, 2,262,350 gsf of commercial space, and 486,950 gsf of RALI space. The Proposed Project would meet, or exceed, all below-market rate housing requirements or pay an in-lieu fee. For the 28-Acre Site, 30 percent of all completed residential units would be required to be offered at below market rate prices; and residential units on the Illinois Parcels would be subject to the affordable housing requirements of the City's Affordable Inclusionary Housing Ordinance. Further, under Board of Supervisors Resolution No. 54-14, if the City exercises its option to purchase the Hoedown Yard from PG&E, proceeds from the sale of the Hoedown Yard would be directed to the City's HOPE SF housing program, which includes the Potrero Terrace and Annex HOPE SF project. Additionally, developers of future buildings at the project site would comply with this requirement by paying the Jobs Housing Linkage Fee for all applicable economic activity categories or subcategories.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Bicycle Parking, Showers, and Lockers in New and Expanded Buildings (San Francisco Planning Code Sections 155.1-155.4)	Requires bicycle facilities for new and expanded buildings, new dwelling units, change of occupancy, increase of use intensity, and added parking capacity/area. Refer to Section 155.2 and 155.3 for requirements by use. Non-residential projects that add 10 or more parking spaces must: meet Planning Code Section 155 and CalGreen 5.106.4 (provide short and long-term (secure) bicycle parking for at least 5 percent of motorized vehicle capacity), whichever is stricter.	The Maximum Residential Scenario would provide up to approximately 1,142 Class 1 and 514 Class 2 bicycle parking spaces in compliance with San Francisco Planning Code, Section 155.1-155.4. The Maximum Commercial Scenario would provide up to approximately 995 Class 1 and 475 Class 2 bicycle parking spaces in compliance with San Francisco Planning Code, Section 155.1-155.4. Bicycle amenities (showers and lockers) would be provided in accordance with Planning Code requirements for both scenarios. In addition, the *Pier 70 SUD Design for Development* may require bike-share stations at Maryland Street between 21st and 22nd streets and if no other bike-share locations are in the Dogpatch neighborhood, at the intersection of Illinois Street and 20th Street. Existing commercial buildings would have up to approximately 12 Class I and 3 Class II bicycle parking spaces in the Maximum Residential Scenario. In the Maximum Commercial Scenario, existing commercial buildings would have up to approximately 33 Class I and 7 Class II bicycle parking spaces. These bicycle parking figures are included in the totals in the above paragraph.
Bicycle parking in parking garages (San Francisco Planning Code Section 155.2)	(C) Garages with more than 500 automobile spaces shall provide 25 spaces plus one additional space for every 40 automobile spaces over 500 spaces, up to a maximum of 50 bicycle parking spaces. Where parking capacity is increased by 10 or more spaces, CalGreen 5.106.4 applies.	Up to two parking structures and several parking facilities may be constructed at the project site with automobile parking spaces. If the garage(s) or underground facilities contain more than 500 automobile spaces, the required amount of bicycle parking spaces would be included. For the Maximum Residential Scenario, this is estimated at up to approximately 169 Class 2 spaces. In the Maximum Commercial Scenario, this is estimated at approximately 175 Class 2 spaces. Note that the Class 2 bicycle parking spaces are included in the overall bicycle parking figures provided in the Planning Code Sections 155.1-155.4 description, above.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Bicycle parking in Residential Buildings (San Francisco Planning Code Section 155.2)	Class 1 Bicycle Parking Spaces: (A) For projects up to 100 dwelling units, one Class 1 space for every 2 dwelling units, or (B) For projects over 100 dwelling units, one Class 1 space for every dwelling unit plus one Class 1 space for every 4 dwelling units over 100. Class 2 Bicycle Parking Spaces: One Class 2 space for every 20 dwelling units.	The Maximum Residential Scenario would provide up to approximately 906 Class 1 and 151 Class 2 bicycle parking spaces in compliance with, or in excess of, the San Francisco Planning Code, Section 115.1-155.4. The Maximum Commercial Scenario would provide up to approximately 561 Class 1 and 82 Class 2 bicycle parking spaces in compliance with, or in excess of, the San Francisco Planning Code, Section 115.1-155.4. Note that the Class 1 and Class 2 bicycle parking spaces are included in the overall bicycle parking figures provided in the Planning Code Sections 155.1-155.4 description, above.
San Francisco Green Building Requirements for Fuel Efficient Vehicle and Carpool Parking (San Francisco Green Building Code Section 5.106.5, CalGreen Sections 5.106.5 and 5.710.6.3)	Requires New Large Commercial projects, New High-rise Residential projects and Commercial Interior projects to provide designated parking for low-emitting, fuel efficient, and carpool/van pool vehicles. Mark 8 percent of parking stalls for such vehicles. For non-residential additions and interior alterations to existing buildings, the regulation applies for projects that would add 10 or more parking spaces to the project site.	The Proposed Project would comply with the San Francisco Green Building Requirements for designated parking as applicable and required. For the Maximum Residential Scenario, up to approximately 88 parking spaces for low-emitting, fuel efficient and carpool/vanpool vehicles would be designated. For the Maximum Commercial Scenario, up to approximately 181 spaces would be designated.
Car Sharing Requirements (San Francisco Planning Code Section 166)	New residential projects or renovation of buildings being converted to residential uses within most of the City's mixed-use and transit-oriented residential districts are required to provide car share parking spaces.	The Proposed Project would comply with San Francisco Planning Code Section 166, requirements for car-share parking spaces. Car share pods would be located throughout the project site, in compliance with Section 166, to reduce the need amongst on-site residents, visitors, and employees for privately owned automobiles and parking. In total, approximately 45 car share parking spaces would be provided in both the Maximum Residential and Maximum Commercial Scenarios.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Energy Efficiency Sector (includes water use reduction regulations)		
San Francisco Health Code Article 12C: Alternate Water Sources for Non-Potable Applications	Requires new buildings of 250,000 sf or more of gross floor area be constructed, operated, and maintained using available alternate water sources for toilet and urinal flushing and irrigation; that new buildings of 40,000 sf or more of gross floor area prepare water budget calculations; and that subdivision approval requirements include compliance with Article 12C.	The Proposed Project would comply with San Francisco Health Code Article 12C. Although the City does not currently have an available source of recycled water, the project sponsors would install recycled water systems to provide the project site with non-potable water needs, such as irrigation, cooling, and/or toilet and urinal flushing. Accordingly, the Proposed Project include the installation of recycled water pipelines beneath existing and proposed streets within the project area as shown on Figure 2.20: Proposed Recycled Water Distribution System. These lines would temporarily connect to the in-City, low-pressure water system at the intersection of 22nd Street with Illinois Street and the intersection of 20th Street with the proposed Louisiana Street. Backflow prevention devices would be installed at each connection to prevent backflow from the recycled water system to the potable low-pressure water system. Once the City's recycled water system is constructed, the Proposed Project's recycled water pipelines would connect to the City's recycled water system. The Eastside Recycle Water Project system is currently in the planning phase and is anticipated to be completed in 2029. Upon completion, the system is planned to connect to the project site.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
San Francisco Green Building Requirements for Energy Efficiency (San Francisco Green Building Code Sections 4.101, 4.103, 5.103)	Demonstrate compliance with Title 24 Part 6 (2013) Energy Standards, and additionally meet energy efficiency prerequisites of the applicable green building rating system: • GreenPoint Rated: demonstrate a 10 percent compliance margin • LEED for Homes (including midrise): demonstrate a 10 percent compliance margin • LEED BD+C 2009: No compliance margin requirement.	The Proposed Project would comply with the San Francisco Green Building Requirements related to energy efficiency. The project sponsors or developers of future buildings on the project site shall provide documentation demonstrating that the Title 24 Part 6 (2013) Energy Standards would be met, including the compliance margin required for the certification system chosen by the project sponsors (GreenPoint Rated or LEED Gold). The proposed buildings would exceed by 5 percent the energy efficiency requirements of Title 24 Part 6 (2013) Energy Standards, or, if Title 24 is updated in the future, the project sponsors would comply with the then-current requirements.
San Francisco Green Building Requirements: Commissioning of Building Energy and Water Systems (LEED EA3, San Francisco Green Building Code Section 5.103.1.4, CalGreen Sections 5.410.2 and 5.410.4.)	New non-residential buildings and alterations to non-residential buildings must conduct design and construction commissioning to verify energy and water using components meet the owner's or owner representative's project requirements. Commissioning requirements apply to all building operating systems covered by Title 24 Part 6, as well as process equipment and controls, and renewable energy systems. • New non-residential projects ≥25,000 sq ft: complete Enhanced Commissioning of Building Energy Systems (meeting LEED EAc3 – SFGBC 5.103.1.4 and CalGreen 5.410.) • Non-residential new buildings and alterations <25,000 square feet and ≥10,000 square feet: commission all energy systems (CalGreen 5.410) • Non-residential new buildings and alterations less than 10,000 square feet, must complete testing and adjusting of energy systems. (CalGreen 5.410.4) • New residential high rise, new commercial interior, and Major Alterations to Residential buildings must each commission building energy systems, meeting the LEED prerequisite EAp1.	All new non-residential buildings and additions to non-residential buildings under the Proposed Project would comply with the San Francisco Green Building Requirements related to the commissioning of building energy and water systems as well as commissioning requirements of Title 24 Part 6.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
San Francisco Stormwater Management Ordinance (Public Works Code, Article 4.2)	All projects disturbing more than 5,000 square feet of ground surface must manage stormwater on-site using low impact design. Comply with the Stormwater Management Ordinance, including SFPUC Stormwater Design Guidelines.	The Proposed Project is subject to these requirements because it would involve disturbance of more than 5,000 square feet of ground surface. The Proposed Project would use Low Impact Design features to decrease storm water flow. The Proposed Project would comply with all City requirements related to stormwater management, including the San Francisco Green Building Requirements, the San Francisco Stormwater Management Ordinance, and the SFPUC's Stormwater Design Guidelines.
San Francisco Green Building Requirements for water use reduction (San Francisco Green Building Code Sections 4.103.2.2 and 5.103.1.2, CalGreen Sections 4.303.1 and 5.303.2-5.303.6)	All new buildings must comply with current CA water fixture and fitting efficiency requirements. All fixtures and fittings within areas of alteration, or serving areas of alteration, must be upgraded to current CA and San Francisco fixture and fitting water efficiency requirements. (For local requirements applicable to alterations, see Commercial Water Conservation Ordinance and Residential Water Conservation Ordinance below.) Additionally: • New large commercial and high-rise residential projects need to: incorporate fixtures and fittings cutting water consumption by a total of 30 percent (LEED WEc3)	The Proposed Project would comply with the San Francisco Green Building Requirements related to water use reduction. For example, to reduce potable water demand, high-efficiency fixtures and appliances would be installed in new buildings, and fixtures in existing buildings would be retrofitted. Further, although the City does not currently have an available source of recycled water, the project sponsors would install recycled water systems to provide non-potable water for activities such as irrigation, cooling, and/or toilet and urinal flushing. Once the City's recycled water system is constructed, the Proposed Project's recycled water pipelines would connect to the City's recycled water system.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Commercial Water Conservation Ordinance (San Francisco Building Code, Chapter 13A)	Requires all alterations to existing commercial properties to achieve the following: 1. If showerheads have a maximum flow >2.5 gallons per minute (gpm), replace with ≤2.0 gpm. 2. All showers have no more than one showerhead per valve. 3. If faucets and faucet aerators have a maximum flow rate >2.2 gpm, replace with unit meeting current code: • Non-residential lavatory: ≤0,4 gpm • Kitchen faucet: ≤0.8 gpm • Metering faucet: ≤0.2 gal/cycle 4. If toilets have a maximum rated water consumption >1.6 gallons per flush (gpf), replace with ≤1.28 gpf toilet. 5. If urinals have a maximum flow rate >1.0 gpf, replace with ≤0.5 gpf unit. 6. Repair all water leaks.	Existing operable structures on the project site would be required to comply with this subject ordinance by January 1, 2017. To reduce potable water demand, high-efficiency fixtures and appliances would be installed in new buildings, and fixtures in existing buildings would be retrofitted.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Residential Water Conservation Ordinance (San Francisco Building Code, Housing Code, Chapter 12A)	Requires all residential properties (existing and new), prior to sale, to upgrade to the following minimum standards: 1. If showerheads have a maximum flow >2.5 gpm, replace with ≤2.0 gpm. 2. All showers have no more than one showerhead per valve. 3. If faucets and faucet aerators have a maximum flow rate >2.2 gpm, replace with unit meeting current code: • Non-residential lavatory: ≤0.4 gpm • Residential lavatory: ≤1.5 gpm • Kitchen faucet: ≤0.8 gpm • Metering faucet: ≤0.2 gal/cycle 4. If toilets have a maximum rated water consumption >1.6 gpf, replace with ≤1.28 gpf toilet 5. If urinals have a maximum flow rate >1.0 gpf, replace with ≤0.5 gpf unit. 6. Repair all water leaks. Although these requirements apply to existing buildings, compliance must be completed through the Department of Building Inspection, for which a discretionary permit (subject to CEQA) would be issued.	The Proposed Project would comply with this requirement by meeting the standards set forth in the Residential Water Conservation Ordinance. To reduce potable water demand, high-efficiency fixtures and appliances would be installed in new buildings, and fixtures in existing buildings would be retrofitted.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
San Francisco Water Efficient Irrigation Ordinance (San Francisco Administrative Code Chapter 63)	Projects that include 500 square feet (sf) or more of new or modified landscape are subject to this ordinance, which requires that landscape projects be installed, constructed, operated, and maintained in accordance with rules adopted by the SFPUC that establish a water budget for outdoor water consumption. Tier 1: 1,000 square feet <= project's modified landscape <2,500 sf Tier 2: (A) New project landscape area is greater than or equal to 500 sf or; (B) the project's modified landscape area is greater than or equal to 2,500 sf. Note: Tier 2 compliance requires the services of landscape professionals. See the SFPUC Web site for information regarding exemptions to this requirement. www.sfwater.org/landscape	The Proposed Project would be subject to Tier 2 requirements because it includes a new landscape area greater than or equal to 500 sf. The Proposed Project would be in compliance with rules adopted by the SFPUC for Tier 2 project landscaping. Although the City does not currently have an available source of recycled water, the project sponsors would install temporary recycled water systems to provide the project site with non-potable water needs, such as irrigation, cooling, and/or toilet and urinal flushing. Once the City's recycled water system is constructed, the recycled water pipelines would connect to the City's recycled water system.
San Francisco Existing Commercial Buildings Energy Performance Ordinance (San Francisco Environment Code Chapter 20)	Owners of nonresidential buildings in San Francisco with ≥10,000 square feet that are heated or cooled must conduct energy efficiency audits, as well as to annually measure and disclose energy performance. Certain exceptions apply for new construction or if specified performance criteria are met.	All of the three existing buildings to remain would comply with San Francisco Environment Code Chapter 20 by benchmarking energy use every year and receiving an energy audit every five years unless performance criteria are met through renovation.
Light Pollution Reduction (CalGreen Section 5.106.8)	For nonresidential projects, comply with lighting power requirements in CA Energy Code, CCR Part 6. Meet California Energy Code minimum for Lighting Zones 1-4 with Backlight/Uplight/Glare ratings meeting CalGreen Table 5.106.8.	The Proposed Project would comply with San Francisco Green Building Requirements for light pollution reduction as applicable and required.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Renewable Energy		
San Francisco Green Building Requirements for Renewable Energy (San Francisco Green Building Code Section 4.201.2)	Newly constructed residential and non-residential buildings of 10 occupied floors or less shall install solar photovoltaic systems and/or solar thermal systems in the solar zone required by California Code of Regulations, Title 24, Part 6 Section 110.10.	The Proposed Project would include for roof-mounted or building-integrated solar photovoltaic (PV) systems and/or roof-mounted solar thermal hot water systems for all proposed buildings, excluding existing Buildings 2, 12, and 21. At least 15 percent of the roof area would include roof-mounted or building-integrated solar PV systems and/or roof-mounted solar thermal hot water systems in residential and commercial buildings. These systems would partially offset the energy demands of the associated buildings.
Waste Reduction Sector		
Mandatory Recycling and Composting Ordinance (San Francisco Environment Code, Chapter 19 and CalGreen Section 5.410.1)	All persons in San Francisco are required to separate their refuse into recyclables, compostables and trash, and place each type of refuse in a separate container designated for disposal of that type of refuse. (San Francisco Environment Code Chapter 19) All new construction, renovation and alterations must provide for the storage, collection, and loading of recyclables, compost and solid waste in a manner that is convenient for all users of the building. (San Francisco Environment Code Chapter 19 and CalGreen 5.410.1)	Under the Proposed Project, typical trash collection trucks would drive around the project site to pick up solid waste from each individual building separated by residents and businesses into recyclables, compostables, and trash for the landfill. The Proposed Project would comply with San Francisco's Green Building Requirements by providing for recycling, compost, and solid waste collection and loading that is convenient for all users.
San Francisco Construction and Demolition Debris Recovery Ordinance (San Francisco Environment Code, Chapter 14, San Francisco Building Code Chapter 13B, and San Francisco Health Code Section 288)	Applies to all projects: No construction and demolition material may be taken to landfill or placed in the garbage. All (100 percent of) mixed debris must be transported by a registered hauler to a registered facility to be processed for recycling. Source separated material must be taken to a facility that recycles or reuses those materials. Additionally, projects that include full demolition of an existing structure must submit a waste diversion plan to the Director of the Department Environment and the plan must provide for a minimum of 65 percent diversion from landfill of construction and demolition debris, including materials source separated for reuse or recycling.	The Proposed Project would comply with San Francisco Green Building Requirements for construction and demolition debris recovery in connection with the proposed demolition by submitting a waste diversion plan to the Director of the Environment. The Proposed Project would not take construction and demolition material directly to a landfill or place it directly in the garbage.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
San Francisco construction and demolition debris recycling requirements (San Francisco Green Building Code Sections 5.103.1.3 and 4.103.2.3)	In addition to complying with the Construction and Demolition Debris Recovery Ordinance, new commercial buildings of ≥25,000 square feet and new residential buildings of 4 or more occupied floors must develop a plan to divert a minimum of 75 percent of construction and demolition debris from landfill, and meet LEED Materials & Resources Credit 2.	The ordinance applies to the Proposed Project because it would include new commercial buildings of ≥25,000 square feet and new residential buildings of 4 or more occupied floors. The Proposed Project would comply with San Francisco Green Building Requirements for construction and demolition debris recycling by submitting a plan to divert a minimum of 75% of construction and demolition debris from landfill and meeting LEED Materials & Resources Credit 2.
Environment/Conservation Sector		
Street Tree Planting Requirements (San Francisco Public Works Code Section 806(d))	Public Works Code Section 806(d) requires projects that include new construction, significant alterations, new curb cuts, a new garage, or new dwelling units to plant a 24-inch box tree for every 20 feet along the property street frontage.	The Proposed Project would plant street trees in accordance with Public Works Code Section 806(d) including along 22nd Street and Maryland Street. Street trees would be permitted, but not required, along Illinois Street, 20th Street, 21st Street, and Louisiana Street. Secretary of the Interior Standards for the Treatment of Historic Properties would be applied to retain the historic industrial character for areas around the historic core. The *Pier 70 SUD Design for Development* would outline street tree planting requirements that are responsive to features of the Union Iron Works Historic District, and therefore restrict street trees along certain street segments. The Proposed Project would plant street trees along designated street segments, for a total of approximately 108 required street trees.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Construction Site Runoff Pollution Prevention for New Construction (San Francisco Public Works Code, Article 4.2)	Construction Site Runoff Pollution Prevention requirements depend upon project size, occupancy, and the location in areas served by combined or separate sewer systems. Any project disturbing ≥5,000 square feet of ground surface is required to submit and receive approval of an Erosion and Sediment Control Plan prior to commencing any construction-related activities. The plan must be site-specific, and details the use, location, and emplacement of the sediment and erosion control devices at the project site. All construction sites, regardless of size, must implement BMPs to prevent illicit discharge into the sewer system. For more information on San Francisco's requirements, see www.sfwater.org.	The Proposed Project would comply with all applicable City requirements related to the prevention of construction site runoff pollution, which would include the preparation of an erosion and sediment control plan, a stormwater soil loss prevention plan, or a Stormwater Pollution Prevention Plan.
Enhanced Refrigerant Management (CalGreen Sections 5.508.1.2 and 5.508.2)	Commercial buildings must not install equipment that contains chlorofluorocarbons or halons. Applies to new construction and all alterations. New commercial refrigeration systems containing refrigerants with Global Warming Potential (GWP) of 150 or greater, installed in food stores with 8,000 square feet or more of refrigerated display cases, walk-in coolers or freezers connected to remote compressor units or condensing units: Piping shall meet all requirements of 5.508.2 (all sections), and shall undergo pressure testing during installation prior to evacuation and charging. System shall stand unaltered for 24 hours with no more than a one pound pressure change from 300 psig.	The Proposed Project would comply with applicable requirements for enhanced refrigerant management as applicable and required.
Low-emitting Adhesives, Sealants, Caulks, Paints, Coatings, Composite wood, and Flooring (CalGreen Section 4.504)[36]	Adhesives, sealants, and caulks - Comply with volatile organic compound (VOC) limits in South Coast Air Quality Management District Rule 1168 VOC limits and California Code of Regulations Title 17 for aerosol adhesives. Paints and coatings - Comply with VOC limits in the Air Resources Board Architectural Coatings	The Proposed Project would comply with applicable requirements for low-emitting materials (adhesives, sealants, caulks, paints, coatings, composite wood, and flooring) as applicable and required.

[36] While not a GHG, VOCs are precursor pollutants that form ground level ozone. Increased ground-level ozone is an anticipated effect of future global warming that would result in added health effects locally. Reducing VOC emissions would reduce the anticipated local effects of global warming.

Table 4.H-2 Continued

Regulation	Requirements	Remarks
	Suggested Control Measure and California Code of Regulations Title 17 for aerosol paints. Carpet - All carpet must meet one of the following: 1. Carpet and Rug Institute Green Label Plus Program, 2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350), 3. NSF/ANSI 140 at the Gold level, 4. Scientific Certifications Systems Sustainable Choice, OR 5. California Collaborative for High Performance Schools (CHPS) EQ 2.2 and listed in the CHPS High Performance Product Database and carpet cushion must meet Carpet and Rug Institute Green Label, and indoor carpet adhesive & carpet pad adhesive must not exceed 50 gallons per VOC content. Composite wood - Meet CARB Air Toxics Control Measure for Composite Wood, including meeting the emission limits in CalGreen Table 5.504.4.5. Resilient flooring systems - For 80 percent of floor area receiving resilient flooring, install resilient flooring complying with: 1. Certified under the Resilient Floor Covering Institute FloorScore program, 2. Compliant with the VOC-emission limits and testing requirements of California Department of Public Health 2010 Standard Method for the Testing and Evaluation Chambers v.1.1, 3. Compliant with the CHPS EQ2.2 and listed in the CHPS High Performance Product Database, OR 4. Certified under the Greenguard Children & Schools Program to comply with California Department of Public Health criteria.	

Table 4.H-2 Continued

Regulation	Requirements	Remarks
Low-emitting Adhesives, Sealants, Caulks, Paints, Coatings, Composite wood, and Flooring (CalGreen Sections 4.504.2 - all sections)	Interior paints and coatings: Comply with VOC limits in the Air Resources Board Architectural Coatings Suggested Control Measure and California Code of Regulations Title 17 for aerosol paints. See CalGreen Table 4.504.3 for details. Aerosol paints and coatings - Meet BAAQMD VOC limits (Regulation 8, Rule 49) and Product-Weighted Maximum Incremental Reactivity Limits for Reactive Organic Compound. (California Code of Regulations Title 17, Section 94520) Caulks, Construction adhesives, and Sealants - Meet South Coast Air Quality Management District Rule 1168. See CalGreen Tables 4.504.1 and 4.504.2. Composite Wood - Meet CARB Airborne Toxic Control Measure formaldehyde limits for composite wood. See CalGreen Table 4.504.5.	The Proposed Project would comply with applicable requirements for low-emitting materials (adhesives, sealants, caulks, paints, coatings, composite wood, and flooring) as applicable and required.
Wood Burning Fireplace Ordinance (San Francisco Building Code, Chapter 31, Section 3111.3; CalGreen Sections 4.503.1 and 5.503.1)	Bans the installation of wood burning fire places (except those that are designed for food preparation in new or existing restaurants or bakeries) except for direct-vent or sealed combustion units compliant with EPA Phase II limits (CalGreen 4.503.1 and 5.503.1) and at least one of the following: • Pellet-fueled wood heater • EPA approved wood heater • Wood heater approved by the Northern Sonoma Air Pollution Control District	This Proposed Project would not include the installation of wood burning fireplaces. To the extent wood burning fireplaces designed for food preparation in new restaurants and bakeries are included, they would comply with applicable requirements.

Note: The GHG Analysis Compliance Checklist for the Pier 70 Mixed-Use District Project has been prepared for the Proposed Project and variants. However, the GHG Checklist provided in the EIR (Table 4.H.2: Regulations Applicable to the Proposed Project) analyzes only the Proposed Project. A GHG emissions analysis for the project variants is provided separately in Chapter 6, Project Variants.

Source: San Francisco Planning Department, GHG Analysis Compliance Checklist for the Pier 70 Mixed-Use District Project, dated November 18. 2015

Compliance with the City's Commuter Benefits Program, transportation management programs, Transportation Sustainability Fee, Jobs-Housing Linkage Program, bicycle parking requirements, low-emission car parking requirements, and car sharing requirements would reduce the Proposed Project's transportation-related emissions.[37] The regulations reduce GHG emissions from single-occupancy vehicles by promoting the use of alternative transportation modes with zero or lower GHG emissions on a per capita basis.

The Proposed Project would be required to comply with the energy efficiency requirements of the City's Green Building Code, Stormwater Management Ordinance, Water Conservation and Irrigation ordinances, and Energy Conservation Ordinance, which would promote energy and water efficiency, thereby reducing the Proposed Project's energy-related GHG emissions.[38] Additionally, the project would be required to meet the renewable energy criteria of the Green Building Code, further reducing the project's energy-related GHG emissions.

The Proposed Project's waste-related emissions would be reduced through compliance with the City's Recycling and Compositing Ordinance, Construction and Demolition Debris Recovery Ordinance, and Green Building Code requirements. These regulations reduce the amount of materials sent to a landfill, reducing GHGs emitted by landfill operations. These regulations also promote reuse of materials, conserving their embodied energy[39] and reducing the energy required to produce new materials.

Compliance with the City's Street Tree Planting requirements would serve to increase carbon sequestration. Other regulations, including those limiting refrigerant emissions and the Wood Burning Fireplace Ordinance would reduce emissions of GHGs and black carbon, respectively. Regulations requiring low-emitting finishes would reduce volatile organic compounds (VOCs).[40] Thus, the Proposed Project was determined to be consistent with San Francisco's GHG reduction strategy.[41]

The project sponsors are required to comply with these regulations, which have proven effective as San Francisco's GHG emissions have measurably decreased when compared to 1990

[37] The Proposed Project would be required to meet the objectives of the Transportation Demand Management (TDM) Ordinance. The TDM Ordinance requires development projects to incorporate design features, incentives, and tools that support alternative forms of transportation.

[38] Compliance with water conservation measures reduce the energy (and GHG emissions) required to convey, pump and treat water required for the project.

[39] Embodied energy is the total energy required for the extraction, processing, manufacture and delivery of building materials to the building site.

[40] While not a GHG, VOCs are precursor pollutants that form ground level ozone. Increased ground level ozone is an anticipated effect of future global warming that would result in added health effects locally. Reducing VOC emissions would reduce the anticipated local effects of global warming.

[41] San Francisco Planning Department, *Greenhouse Gas Analysis: Compliance Checklist for Pier 70 Mixed-Use District Project*, November 18, 2015.

emissions levels, demonstrating that the City has met and exceeded EO S-3-05, AB 32, Clean Air Plan GHG reduction goals for the year 2020. Other existing regulations, such as those implemented through AB 32, will continue to reduce a proposed project's contribution to climate change. In addition, San Francisco's local GHG reduction targets are consistent with the long-term GHG reduction goals of EO S-3-05, EO B-30-15, AB 32, and the Clean Air Plan.

Furthermore, as discussed in the Regulatory Setting section above, the land use strategy in *Plan Bay Area* is intended to meet the per-capita GHG reduction targets of 7 percent by 2020 and 15 percent by 2035 from 2005 levels. *Plan Bay Area's* land use strategy is to promote future development around existing and planned transit nodes. New development areas that would support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit are identified as Priority Development Areas (PDAs) in *Plan Bay Area*. As stated in the *Plan Bay Area Environmental Impact Report*, implementation of the land use and transportation strategies in *Plan Bay Area* would reduce GHG emissions by 15 percent between 2010 and 2040.[42] *Plan Bay Area* meets the requirements of SB 375 by developing an integrated transportation and land use plan that would attain per-capita GHG emissions reduction targets of 7 percent by 2020 and 15 percent by 2035 from 2005 levels.[43]

Because the Proposed Project would be located within a PDA, consistent with *Plan Bay Area's* land use strategy, it would assist in reducing projected levels of regional GHG land use emissions. Furthermore, because it is located within a PDA and would provide housing and commercial uses within the PDA, the Proposed Project would be consistent with *Plan Bay Area* and would further the State and regional goals of accommodating growth in ways that would reduce GHG emissions.

Therefore, because the Proposed Project is consistent with the City's GHG reduction strategy, it is also consistent with the GHG reduction goals of EO S-3-05, EO B-30-15, AB 32, and the Clean Air Plan, would not conflict with these plans, and would therefore not exceed San Francisco's applicable GHG threshold of significance. As such, the Proposed Project would result in a less-than-significant impact with respect to GHG emissions. No mitigation measures are necessary.

While the Proposed Project would result in a less-than-significant impact from GHG emissions, it is worth noting that a number of mitigation measures identified in this EIR would also have the added co-benefit of even further reducing GHG emissions from the Proposed Project. These mitigation measures and an explanation of how they would reduce the project's GHG emissions are described below.

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[42] ABAG and Metropolitan Transportation Commission, *Environmental Impact Report for Plan Bay Area*, Draft, April 2013. p. 2.5-56.

[43] ABAG and Metropolitan Transportation Commission, *Environmental Impact Report for Plan Bay Area*, Draft, April 2013. p. ES-5.

Mitigation Measure M-AQ-1g: Transportation Demand Management, shown in Section 4.G, Air Quality, on pp. 4.G.47-4.G.50, would require the reduction of the project's one-way vehicle trips by 20 percent through the implementation of Transportation Demand Management (TDM) strategies. Components of the TDM Plan would encourage use of transit and non-motorized modes of transportation which would help reduce emissions of GHGs. In addition, Mitigation Measures MM-AQ-1a through MM-AQ-1g, pp. 4.G.42 -4.G.51, would help reduce emissions of GHGs through the reduction in construction emissions; limitations on diesel generators; use of low VOC architectural coatings and green consumer products; electrification of loading docks; and emission offsets.

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