

## 6. PROJECT VARIANTS

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Chapter 6, Project Variants, discusses four variations on features of the Proposed Project that are under consideration by the project sponsors: a Reduced Off-Haul Variant, a District Energy System Variant, a Wastewater Treatment and Reuse System (WTRS) Variant, and an Automated Waste Collection System (AWCS) Variant. The variants modify one limited feature or aspect of the Proposed Project, unlike the Alternatives to the Proposed Project analyzed in Chapter 7, Alternatives, which provide a different features or characteristics to the Proposed Project. Therefore, each variant is the same as the Proposed Project except for the specific variation described. The variants are being considered by the project sponsors, but have not been confirmed to be part of the Proposed Project. Each variant could be selected by the project sponsors and decision-makers, and any variant or combination of variants could be included in the Proposed Project as part of an approval action.

This chapter describes each variant and its environmental impacts that would be different from those identified for the Proposed Project in Chapter 4, Environmental Setting and Impacts. If not included in the analysis, the environmental impacts of the variant would be the same as those for the Proposed Project. Mitigation and improvement measures applicable to the Proposed Project and to the variant are identified.

### A. REDUCED OFF-HAUL VARIANT

#### *Introduction*

The Reduced Off-Haul Variant is a construction-related variant that focuses on minimizing the overall volume of excavated soils and the number of off-haul truck trips required for the transport and disposal of excavated soils. The strategy for achieving this reduction is three-fold: (1) modify the preliminary grading plan developed for the Proposed Project<sup>1</sup> to raise the base elevation for a portion of the 28-Acre Site; (2) eliminate the proposed 15-foot-deep below-grade basement levels at selected locations on the 28-Acre Site and extend the footprint of one proposed 15-foot-deep below-grade basement level; and (3) eliminate a portion of one of the two below-grade basement levels on Parcel C1.

The combination of the proposed increase to the base elevation on a portion of the 28-Acre Site and the modifications to the below-grade basement level parking program would result in an approximately 56 percent reduction in the volume of excavated soils that would need to be transported off site (from approximately 340,000 cubic yards under the Proposed Project to

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<sup>1</sup> BKF, *Pier 70 Redevelopment Preliminary Grading Plan*, March 24, 2015.

approximately 150,000 cubic yards under the Reduced Off-Haul Variant). As with the Proposed Project, under the Reduced Off-Haul Variant clean fill would be imported to the project site and any excavated soils appropriate for reuse, as determined in the Pier 70 Risk Management Plan, would remain on site to help protect against flooding and projected future sea level rise. Under the variant, there would be a slight increase in the volume of imported clean fill (from approximately 20,000 cubic yards under the Proposed Project to approximately 21,150 cubic yards). The need for slightly more imported clean fill under this variant is likely a reflection of the assumptions regarding the retaining wall and the area of exposed landscaping as well as rounding. Overall, the Reduced Off-Haul Variant would result in an approximately 52 percent reduction in the combined earth movement. Although the grading plan for this variant would result in an increase to the base elevation of a portion of the 28-Acre Site, it would not conflict with implementation of the transportation and circulation improvements, new and upgraded utilities and infrastructure, geotechnical and shoreline improvements, public open space, and other sea-level rise adaptation strategies. Under this variant, as with the Proposed Project, the potential hazard of liquefaction and lateral spreading of the underlying soils in the case of a major earthquake would be addressed in part by reinforcing slopes at the site with a structural wall or ground improvement along the northeastern and southeastern portions of the 28-Acre Site. Structural wall solutions may include, but are not limited to, tied-back sheet pile walls (interlocking sheets of steel), rows of secant piles (interlocking piles), and king-pile walls (wider piles connected by sheeting). Ground improvement may consist of treatments such as deep soil mixing to add a cement slurry to strengthen the existing soil, or vibratory methods such as vibro-compaction, vibro-replacement, and dynamic compaction to densify and strengthen the existing soil.

The Reduced Off-Haul Variant does not include any changes to the land use programs for the Maximum Residential Scenario or the Maximum Commercial Scenario for the Proposed Project. As discussed in Chapter 2, Project Description, pp. 2.1-2.3, the above-grade development options for Parcel C1 include development of an above-grade parking structure, a residential building, or a commercial building. The Parcel C1 development options would remain applicable to this variant. The land use program and project site improvements would be implemented in a similar fashion as those for the Proposed Project.

### ***Description***

#### **PROPOSED REDUCED OFF-HAUL VARIANT GRADING PLAN**

The 35-acre project site (the 28-Acre Site and 7-acre Illinois Parcels) has varying topography, sloping up from the San Francisco Bay shoreline, with an approximately 30-foot increase in elevation at the western extent of the 28-Acre Site. (See Section 4.N, Geology and Soils, pp. 4.N.2-4.N.5, for a detailed discussion of the project site's topography and underlying soil

strata.) As with the Proposed Project, the Reduced Off-Haul Variant would involve the excavation of soils for grading and construction of the 15- to 27-foot-deep basements planned on some of the development parcels. The preliminary grading plan developed for the variant, similar to that for the Proposed Project, calls for an increase in the base elevation of the 28-Acre Site and low-lying portions of the Illinois Parcels, the removal of the northern spur of the remnant of Irish Hill for construction of the new 21<sup>st</sup> Street, and the development of retaining walls along the sides of the new 21<sup>st</sup> Street (for the protection of Building 116 and the remnant of Irish Hill) and along the reconfigured 22<sup>nd</sup> Street (to account for the proposed elevation difference between the streets and adjacent ground surfaces/development pads).<sup>2</sup> Unlike the Proposed Project, under the Reduced Off-Haul Variant a continuous retaining wall would be developed along the base of the remnant of Irish Hill (paralleling the western boundaries of Parcels C1 and C2) and would connect the retaining walls along the new 21<sup>st</sup> and 22<sup>nd</sup> streets. As a result, a segment of the proposed retaining wall along the northern side of the new 22<sup>nd</sup> Street adjacent to Parcel C2 would not be constructed under the Reduced Off-Haul Variant.

To provide flexibility for site grading work anticipated as part of the preservation and rehabilitation of Building 12 (see Chapter 2, Project Description, pp. 2.68-2.70), the Reduced Off-Haul Variant would include two of the three grading options developed for the Proposed Project (Grading Options 2 and 3). Grading Option 1: Raise the Exterior Grade Only would not be an applicable option under this variant because the exterior grade around the perimeter of Building 12 (along new Maryland, 22<sup>nd</sup>, and Louisiana streets) would be increased by roughly 5 to 8 feet over that for the Proposed Project (approximately 4 feet). Thus, the relationship between the current finished floor elevation for Building 12 (102.4 feet Project Datum), the structural frame of Building 12, and the grades of the surrounding streets presumed under Grading Option 1 would not be applicable to the Reduced Off-Haul Variant.

Under the Reduced Off-Haul Variant, the portion of the 28-Acre Site comprised of Parcels C2, E1 through E4, F, G, H1, and H2; Building 21; and the new Maryland, Louisiana, and 22<sup>nd</sup> streets public rights-of-way would be developed at slightly higher base elevations and with slightly different slope gradients than under the Proposed Project. According to the preliminary grading plan for the Reduced Off-Haul Variant, the proposed increases in the base elevations (over those for the Proposed Project) would be approximately 3 feet in the vicinity of Parcel C2 at the midpoint of new Louisiana Street (between new 21<sup>st</sup> and 22<sup>nd</sup> streets), approximately 5 feet in the vicinity of Building 12 and Parcels E2, G, and H1 at the corner of new Maryland and 22<sup>nd</sup> streets, approximately 6 feet in the vicinity of Building 12 and Parcels E1 and E2 at the

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<sup>2</sup> BKF, *Pier 70 Redevelopment Preliminary Grading Plan for Highest Height Grading Variant Scenario*, March 1, 2016.

midpoint of new Maryland Street (between new 21<sup>st</sup> and 22<sup>nd</sup> streets), and approximately 8 feet in the vicinity of Parcels C2 and F at the corner of new Louisiana and 22<sup>nd</sup> streets.<sup>3</sup>

### **Slipways Commons**

Under the Proposed Project, the proposed Slipways Commons would be relatively flat from west to east between the midpoint of new Maryland Street (between new 21<sup>st</sup> and 22<sup>nd</sup> streets) east to the San Francisco Bay shoreline (an elevation change of less than 1 foot). Under the Reduced Off-Haul Variant, the proposed Slipways Commons would be developed with a higher base elevation closer to the new Maryland Street right-of-way (from 104 feet under the Proposed Project to 110 feet under this variant) and would slope from west to east at an approximately 1.6 percent gradient, which would be greater than that under the Proposed Project.

### **New Maryland Street**

Under the Proposed Project, new Maryland Street would be relatively flat from north to south between new 21<sup>st</sup> and 22<sup>nd</sup> streets (an elevation change of less than 1 foot). North of new 21<sup>st</sup> Street toward the northern boundary of the 28-Acre Site there would be a south-to-north trending slope of approximately 1.4 percent. South of new 22<sup>nd</sup> Street there would be a south-to-north trending slope of approximately 0.7 percent (from the southern boundary of the 28-Acre Site toward the corner of new Maryland and 22<sup>nd</sup> streets). Under the Reduced Off-Haul Variant the new Maryland Street right-of-way would be developed with a higher base elevation than that for the Proposed Project, and would result in a slight south-to-north slope from the midpoint of new Maryland Street north toward new 21<sup>st</sup> Street. There would be no change north of new 21<sup>st</sup> Street toward the northern boundary and the BAE Systems Ship Repair site. The proposed change to the base elevation of the new Maryland Street right-of-way would also result in a change in the direction of the slope from the corner of new Maryland and 22<sup>nd</sup> streets (from a 0.7 percent south-to-north trending slope under the Proposed Project to a 1.9 percent north-to-south trending slope [toward the decommissioned Potrero Power Plant site immediately south of the 28-Acre Site]).

### **New 22<sup>nd</sup> Street**

The existing segment of 22<sup>nd</sup> Street between Illinois Street and the western boundary of the 28-Acre Site would be rebuilt as part of the Proposed Project with a slight slope (0.2 percent) to the west near the intersection of 22<sup>nd</sup>/Illinois streets and a more discernible slope (3.2 percent) to the east from the westernmost extent of 22<sup>nd</sup> Street to the western boundary of the 28-Acre Site, a west-to-east elevation change of approximately 14 feet over that distance. Under the Reduced

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<sup>3</sup> Ibid.

Off-Haul Variant there would be an approximately 4- to 6-foot increase to the base elevation of 22<sup>nd</sup> Street along the segment of the roadway adjacent to the proposed retaining walls on the northern and southern sides of the street. As evidenced by the change in the slope gradient for the existing north-south driveway that provides access to the Pacific Gas and Electric (PG&E) Substation (from 8.1 percent under the Proposed Project to 2.1 percent under this variant), this base elevation change would result in a gentler west-to-east slope over the segment of 22<sup>nd</sup> Street between Illinois Street and the western boundary of the 28-Acre Site than under the Proposed Project. As with the Proposed Project and as noted above, the southern side of 22<sup>nd</sup> Street (on each side of the existing PG&E Substation driveway) would be supported by retaining walls.

Under the Proposed Project, the slope of new 22<sup>nd</sup> Street between the western boundary of the 28-Acre Site and the eastern terminus of new 22<sup>nd</sup> Street would trend west to east with an elevation change of approximately 8 feet. With the Reduced Off-Haul Variant, the increase in the base elevation for the new 22<sup>nd</sup> Street right-of-way would result in an approximately 16-foot elevation change over the same distance and would lead to a steeper west-to-east trending slope than that under the Proposed Project. Overall, the change in elevation along the 22<sup>nd</sup> Street right-of-way between Illinois Street and the eastern terminus of new 22<sup>nd</sup> Street (from west to east toward the San Francisco Bay shoreline) would be approximately 23 feet (from 38 feet NAVD88 [127 Project Datum] to 15 feet NAVD88 [104 feet Project Datum]).

### **New Louisiana Street**

Under the Proposed Project, the slope of new Louisiana Street (approximately 0.7 percent) would trend south to north from the corner of new Louisiana and 22<sup>nd</sup> streets north toward new 21<sup>st</sup> Street with an elevation change of approximately 4 feet. With the Reduced Off-Haul Variant, the increase in the base elevation for the new Louisiana Street right-of-way would result in an approximately 11-foot elevation change over the same distance, resulting in an approximately 2.4 percent south-to-north trending slope, which would be greater than the approximately 0.7 percent slope under the Proposed Project.

### **PROPOSED EXCAVATION**

Under the Proposed Project, new construction on Parcels C1 and C2 would include 27-foot-deep below-grade basements, and new construction on Parcels D, E1 through E4, F, G, H1, and H2 would include 15-foot-deep below-grade basements. Under the Reduced Off-Haul Variant, new construction on Parcels E1 through E4, H1, and H2 would not include basements. In addition, under this variant new construction on Parcel C1 (which, as with the Proposed Project, could be developed as an above-grade parking garage, a residential building, or commercial building; all with two below-grade basement levels) would not include a portion of the lower level of the two below-grade basement levels (the eastern portion), and new construction on Parcel D would

include the extension of the excavation footprint for the 15-foot-deep below-grade basement level. The finished floor elevations for the proposed new structures on Parcels D and E1 through E4, and relocated Building 21 would remain the same as those under the Proposed Project. As described above, under the Reduced Off-Haul Variant the base elevation for development of new structures on Parcels C2, F, G, H1, and H2 would be increased by approximately 2 to 8 feet over that for the Proposed Project, with the greatest increase along the western boundary of the 28-Acre Site. As a result, the finished floor elevations on Parcels H1 and H2 would be slightly higher under this variant than those under the Proposed Project, approximately 4 and 2 feet higher, respectively. On Parcel C2, which would retain the two below-grade basement levels under the Proposed Project, the basement parking slab and finished floor elevations would be 3 feet higher under this variant than those under the Proposed Project. On Parcels F and G, both of which would retain the 15-foot-deep basement levels under the Proposed Project, the basement parking slab and finished floor elevations would be slightly higher under this variant than those under the Proposed Project, approximately 8 and 6 feet higher, respectively.

## **PROPOSED CONSTRUCTION PHASING**

Under the Reduced Off-Haul Variant, demolition, excavation, site grading, and construction activities would be conducted according to the construction phases and the timing would be substantially the same as under the Proposed Project (see Figure 2.26: Proposed Phasing Plan – Maximum Residential Scenario, Figure 2.27: Proposed Phasing Plan – Maximum Commercial Scenario, Table 2.5: Project Construction Phasing – Maximum Residential Scenario, and Table 2.6: Project Construction Phasing – Maximum Commercial Scenario, in Chapter 2, Project Description, pp. 2.83-2.84). The Reduced Off-Haul Variant would include demolition of the same buildings as well as construction of the same shoreline improvements and transportation, utility, and open space networks. The variant would not change any aspect of the Proposed Project related to demolition; the construction of shoreline improvements; geotechnical stabilization; the construction of the transportation, open space, and utility infrastructure networks; or other improvements such as the construction of the new 20<sup>th</sup> Street pump station; however, the volume of excavated soils would be reduced and changes to site grading would result in slightly higher base elevations and slope gradients. Proposed development is expected to involve up to five phases (Phases 1 through 5) and is conceptual; however, construction is expected to begin in 2018 and would be phased over an approximately 11-year period, concluding in 2029. As with the Proposed Project, the multi-phased approach to project site development would result in project site occupancy and operations overlapping with, and being affected by, future construction phases.

## ***Proposed Land Use Programs***

The Reduced Off-Haul Variant does not include any changes to the land use programs for the Maximum Residential Scenario or the Maximum Commercial Scenario defined for the Proposed Project or changes to the proposed open space network, traffic and circulation plan, new infrastructure and utility plans, geotechnical stabilization plan, or the shoreline improvement plan described in Chapter 2, Project Description. The land use program and project site improvements would be implemented in a similar fashion as that for the Proposed Project according to the timeline defined in the phasing plan for the Proposed Project.

## ***Impact Evaluation***

### **APPROACH TO ANALYSIS**

The Reduced Off-Haul Variant to the Proposed Project does not involve any change to the mix of land uses, the space allocation of uses, or the residential unit count under the Maximum Residential and Maximum Commercial Scenarios of the Proposed Project. Likewise, this variant does not involve any change to the locations, configurations, or building envelopes of the programmed development under the two scenarios analyzed for the Proposed Project. Therefore, physical environmental effects under this variant would be substantially the same as those identified for the Proposed Project for the following environmental topics: Land Use and Land Use Planning, Population and Housing, Recreation, Utilities and Service Systems, Public Services, Mineral and Energy Resources, and Agricultural and Forest Resources. All mitigation and improvement measures described for these topics under the Proposed Project would be applicable to this variant.

The following environmental topics are analyzed for this variant: Cultural Resources (Archaeological Resources and Historic Architectural Resources), Transportation and Circulation, Noise and Vibration, Air Quality, Greenhouse Gas Emissions, Wind and Shadow, Biological Resources, Geology and Soils, Hydrology and Water Quality, and Hazards and Hazardous Materials.

### **CULTURAL RESOURCES**

#### **Archeological Resources, Human Remains, and Tribal Cultural Resources**

Under the Reduced Off-Haul Variant, the depth and extent of excavation would be reduced and/or modified through the elimination of the below-grade basement levels on Parcels E1 through E4, H1, and H2; the elimination of the eastern portion of one of the two below-grade basement levels on Parcel C1; and the limited expansion of the proposed 15-foot-deep below-grade basement level on Parcel D. As with the Proposed Project, excavated soils would be

analyzed prior to off-hauling to determine the volume that could be reused on the project site. Excavated soils and clean imported fill would be used to increase the base elevation on the southeast portion of the 28-Acre Site, which would be higher than that for the Proposed Project.

The project site has been extensively altered over time, resulting in low potential for prehistoric archeological resources. As further described, historic archeological resources such as subsurface architectural features related to the Union Iron Works (UIW) Historic District, landscape features evidencing historic land uses, infrastructure features related to the former Union Iron Works/Bethlehem Steel industrial complex and associated industrial activities, refuse features related to Irish Hill habitation and industrial occupancies, and industrial features related to the various industries that have occupied the project site may be present on the project site. Although the potential for the discovery of historic archeological resources exists, the site history suggests that the rapid large-scale expansion of this area in response to the needs of World Wars I and II constituted a series of actions more likely to have damaged or destroyed valuable archaeological resources, than to have left behind any new significant resources. However, as discussed under Impacts CR-1 and CR-2 for the Proposed Project on pp. 4.D.24-4.D.31, the potential for encountering subsurface archeological resources, including human remains, cannot be conclusively ruled out, especially in those circumstances where excavation and grading would occur in previously undisturbed soils. Thus, as with the Proposed Project, with implementation of Mitigation Measures M-CR-1a: Archaeological Testing, Monitoring, Data Recovery and Reporting and M-CR-1b: Interpretation, pp. 4.D.25-4.D.29, the Reduced Off-Haul Variant would not cause a substantial adverse change to the significance of an archaeological resource, if present within the project site.

The impacts of the Reduced Off-Haul Variant on tribal cultural resources would be substantially the same as those for the Proposed Project, i.e., less than significant (see Impact CR-3 on p. 4.D.31).

Therefore, the project-level and cumulative archeological and tribal cultural resources impacts under the Reduced Off-Haul Variant would be the same as, or similar to, those discussed for the Proposed Project under Impacts CR-1 through CR-3 and Impact C-CR-1 in Section 4.D, Cultural Resources. Thus, as with the Proposed Project, with implementation of Mitigation Measures M-CR-1a and M-CR-1b, the project-level and cumulative impacts of the Reduced Off-Haul Variant would be reduced so as not to cause a substantial adverse change to archeological and tribal cultural resources.

### **Historic Architectural Resources**

The project site contains 11 contributors to the UIW Historic District (see Table 4.D.1: Contributing UIW Historic District Features on the Project Site, p. 4.D.35). The Reduced Off-



Haul Variant (including the three options for stormwater/wastewater management and treatment and two of the three options for grading around Building 12) would not include any changes to the Maximum Residential Scenario or the Maximum Commercial Scenario defined for the Proposed Project; or the plans for the preservation/rehabilitation/relocation of Buildings 2, 12, and 21; the demolition of Buildings 11, 15, 16, 19, 25, 32, and 66; the removal of the northern spur of the remnant of Irish Hill for construction of the new 21<sup>st</sup> Street; the transportation and open space network; the utility infrastructure; the public realm improvements; or the design principles identified in the *Pier 70 SUD Design for Development*.

Under the Reduced Off-Haul Variant, as with the Proposed Project, the project site's base elevation would be raised for the purposes of sea-level rise protection. However, under this variant there would be a 2- to 8-foot addition to the proposed 5-foot increase to the base elevation of the southeastern portion of the 28-Acre Site identified for the Proposed Project. As with the Proposed Project, the generally flat and developed appearance of the UIW Historic District would not be perceptibly altered by the range of increases to the project site's base elevation under this variant and the resultant slope gradient changes. Thus, as with the Proposed Project, the impact of the Reduced Off-Haul Variant's preliminary site grading plan on the integrity of setting for the UIW Historic District would be less than significant with mitigation.

As stated above, only two of the three grading options identified under the Proposed Project would be applicable to the Reduced Off-Haul Variant. Grading Option 1 would not be applicable under this variant because of the roughly 5- to 8-foot increase to the exterior grade around Building 12 (especially on its eastern and southern elevations along new Maryland and new 22<sup>nd</sup> streets, respectively). Grading Option 2: Raise the Interior Slab on Grade of Building 12 Structural Frame and Raise the Exterior Grade, and Grading Option 3: Raise Building 12 Structural Frame would remain applicable because these options include changes to the elevation of Building 12's interior slab and its structural frame. Under this variant, the maximum changes to the base elevations immediately surrounding Buildings 2, 12, and 21 would be approximately 2 feet, approximately 8 feet, and approximately 5 feet, respectively. Therefore the height of the retained historic structures under this variant (and their relationships to other resources and the UIW Historic District as a whole) would not be substantially different from those under the Proposed Project (including Grading Options 2 and 3), and would not constitute a material change to the integrity of the individual resource's physical setting. Under the Reduced Off-Haul Variant, as with the Proposed Project, the proposed changes to Buildings 2, 12, and 21 would adhere to the Secretary of the Interior's Standards, ensuring that the majority of the character-defining features of the individual resources would be retained. Thus, as with the Proposed Project, the minor change to the relationship of rehabilitated (Buildings 2 and 12), relocated (Building 21), and new infill structures to each other, to the project site's transportation and open space network, and to the overall environmental setting including the UIW Historic District as a

result of an incremental raising of the project site's base elevation under the Reduced Off-Haul Variant would have a less-than-significant impact on the integrity of setting at any of the rehabilitated or relocated contributing resources. In addition, the land use program for the Proposed Project and the variant would be similar; thus, as with the Proposed Project, the impacts associated with the demolition of historic resources and the construction of new buildings within and adjacent to the existing UIW Historic District and the remnant of Irish Hill would be less than significant, as with the Proposed Project.

Therefore, the project-level and cumulative historic architectural resource impacts under the Reduced Off-Haul Variant would be the same as, or similar to, those discussed for the Proposed Project under Impacts CR-4 through CR-12 and Impact C-CR-2 in Section 4.D, Cultural Resources. As with the Proposed Project, with implementation of Improvement Measures I-CR-4a: Documentation and I-CR-4b: Public Interpretation, on pp. 4.D.91-4.D.92, the less-than-significant impact related to the proposed demolition of seven contributing features would be reduced. Furthermore, as with the Proposed Project, with implementation of Mitigation Measures M-CR-5: Preparation of Historic Resource Evaluation Reports, Review, and Performance Criteria and M-CR-11: Performance Criteria and Review Process for New Construction, on pp. 4.D.93-4.D.94 and pp. 4.D.103-4.D.106, the project-level and cumulative impacts of the relocation and rehabilitation of contributing features would be reduced so as not to cause a substantial adverse change to historic architectural resources.

Based on the above, project-level and cumulative cultural resource impacts under the Reduced Off-Haul Variant would be similar to those identified under the Proposed Project (see Section 4.D, Cultural Resources). Implementation of the Reduced Off-Haul Variant would not change the analysis or conclusions in that section, would not result in new or more severe impacts, and no new mitigation measures would be required.

## **TRANSPORTATION AND CIRCULATION**

Demolition, excavation, site grading, and construction activities under the Reduced Off-Haul Variant would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. Under this variant (even with consideration for the slight increase in the amount of imported clean fill than that for the Proposed Project) there would be slightly fewer construction truck traffic trips due to the reduction in the volume of excavated soils that would need to be transported off site for disposal or reuse. As discussed under Impact TR-1 for the Proposed Project, this variant would also use the same construction truck traffic routes (e.g., Third Street and either 25<sup>th</sup> or Mariposa streets to access I-280 to travel south; Third Street and either Second or Fifth streets to reach the Bay Bridge and the East Bay; and Third Street, Howard Street, and Van Ness Avenue [U.S. 101] to travel to North Bay destinations). The temporary (and less than significant) impacts associated with construction-related traffic of the Proposed Project

are described under Impact TR-1, and that impact analysis would be applicable to this variant because construction truck traffic would be substantially the same as, or less than that, for the Proposed Project and would not lead to a different conclusion.

The Reduced Off-Haul Variant would not result in any increases in operational VMT because it is a construction-related variant and does not alter the development scenarios for the Proposed Project. Since the Reduced Off-Haul Variant would not change any of the operational aspects of the Proposed Project there would be no change to traffic, transit, pedestrian, bicycle, loading, or emergency access. This variant would not change any of the circulation patterns on the project site. Therefore, operational-related project-level transportation and circulation impacts under the Reduced Off-Haul Variant would be substantially the same as those discussed for the Proposed Project. Thus, all operational-related mitigation measures identified for the Proposed Project would be applicable to the Reduced Off-Haul Variant (i.e., Mitigation Measure M-TR-5: Monitor and increase capacity on the 48 Quintara/24<sup>th</sup> Street bus routes as needed [pp. 4.E.91 to 4.E.93] under Impact TR-5; Mitigation Measure M-TR-10: Improve pedestrian facilities on Illinois Street adjacent to and leading to the project site [pp. 4.E.99-4.E.100] under Impact TR-10; Mitigation Measure M-TR-12a: The Project's Transportation Coordinator should coordinate with building tenants and delivery services to minimize deliveries during a.m. and p.m. peak periods under Impact TR-12; Mitigation Measure M-TR-12B: Monitor loading activity and convert general purpose on-street parking spaces to commercial loading spaces, as needed [p. 4.E.105] under Impact TR-12; Mitigation Measure M-C-TR-4a: Increase capacity on the 48 Quintara/24<sup>th</sup> Street bus route under the Maximum Residential Scenario [p. 4.E.118] under Impact C-TR-4; and Mitigation Measure M-C-TR-4b: Increase capacity on the 22 Fillmore bus route under the Maximum Commercial Scenario [p. 4.E.118] under Impact C-TR-4). The proposed modifications to the below-grade parking program under this variant would not result in any changes to the overall parking program. Parking spaces that would not be available under this variant would be provided in building podiums and as part of a structured parking program on Parcels C1 and C2 (if implemented).

Based on the above, project-level and cumulative transportation and circulation impacts under the Reduced Off-Haul Variant would be similar to those identified under the Proposed Project (see Section 4.E, Transportation and Circulation). Implementation of the Reduced Off-Haul Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **NOISE AND VIBRATION**

Under the Reduced Off-Haul Variant, construction-related noise and vibration would be generated by the same types of construction equipment as the Proposed Project. Under this variant, demolition, excavation, site grading, and construction activities would be conducted

according to the same construction phases (Phases 1 through 5) as under the Proposed Project. As discussed under Impact NO-1, on-site construction equipment would be operated in accordance with Article 29 of the San Francisco Police Code (Noise Ordinance). As discussed under Impact NO-2, the multi-phased approach to project site development would result in the exposure of sensitive receptors (e.g., the residential land uses on the Illinois Parcels – Parcels HDY1, HDY2, PKN, and PKS) to noise from active construction phase(s) and operational noise associated with the occupancy and operation of previously completed phases. As discussed under Impact NO-3, the noise and vibration that would be generated during the excavation and construction of the proposed on-site structures would include groundborne noise and surface vibrations from pile-driving for foundations and potentially construction of structural wall solutions. Further, construction-related traffic increases from all new development on the project site would use the same roads (20<sup>th</sup>, new 21<sup>st</sup>, and new 22<sup>nd</sup> streets) to access the project site from Illinois Street, exposing the same sensitive receptors (those facing these streets on Parcels C2, F, G, HDY, PKN, and PKS) to construction traffic noise increases (over the 11 years of construction).

Due to the more limited excavation plan, the decrease in the number of material deliveries since fewer basement levels would be constructed, and the decrease in the number of construction truck trips with the reduction in the volume of earth movement under this variant (even with consideration for the slight increase in the amount of clean fill that would be imported to the project site), the increase in ambient noise levels during the various construction phases would be expected to be incrementally less than that which would be generated under the Proposed Project. Although construction-related noise under the Reduced Off-Haul Variant would decrease, the decrease would be minimal in relation to the noise generated by the overall amount of construction and the overall number of construction truck trips estimated for the Proposed Project. Thus, the construction noise impacts related to the use of construction equipment under this variant would be less than significant with mitigation, similar to those for the Proposed Project; and the construction-related mitigation measure identified for the Proposed Project would be applicable to the Reduced Off-Haul Variant (i.e., Mitigation Measure M-NO-1: Construction Noise Control Plan on pp. 4.F.33-4.F.35). As with the Proposed Project, the finding of a significant and unavoidable construction-related impact on existing and future on- and off-site sensitive receptors under this variant would be associated with the potential for pile driving; thus, as with the Proposed Project, Mitigation Measure M-NO-2: Noise Control Measures During Pile Driving (see pp. 4.F.40-4.F.41) would also be applicable to the Reduced Off-Haul Variant. Although construction-related groundborne vibration under this variant could decrease due to the more limited excavation plan, the decrease would be slight in relation to the overall development program and the site stabilization plan. Thus, the construction-related mitigation measure identified for the Proposed Project would also be applicable to the Reduced Off-Haul Variant (i.e., Mitigation Measure M-NO-3: Vibration Control Measures During Construction on pp. 4.F.44-4.F.45).

As noted above, the Reduced Off-Haul Variant would not include any changes to the Maximum Residential or Maximum Commercial Scenarios. Thus, under the Reduced Off-Haul Variant, as with the Proposed Project, operational-related noise impacts related to stationary equipment and special events would remain less-than significant with mitigation (Impact NO-4 on pp.4.F.45-4.F.51 and Impact NO-7). As with the Proposed Project, operational-related noise impacts related to traffic noise would remain significant and unavoidable even with implementation of mitigation measures identified for the Proposed Project (see Impact NO-5). And finally, as with the Proposed Project, noise related to operations-related groundborne noise and vibration under this variant would be less than significant (see discussion under Impact NO-8 on pp. 4.F.76-4.F.77). All operational-related mitigation measures identified for the Proposed Project (i.e., Mitigation Measures M-NO-4a: Stationary Equipment Noise Controls and M-NO-4b: Design of Future Noise-Generating Uses near Residential Uses on pp. 4.F.50-4.F.51; Mitigation Measure M-AQ-1g: Transportation Demand Management, in Section 4.G, Air Quality, on p. 4.G.50; Mitigation Measure M-NO-6: Design of Future Noise-Sensitive Uses on pp. 4.F.70-4.F.71; and Mitigation Measure M-NO-7: Noise Control Plan for Special Outdoor Amplified Sound, p. 4.F.73) would therefore be applicable to the Reduced Off-Haul Variant.

Based on the above, project-level and cumulative noise and vibration impacts under the Reduced Off-Haul Variant would be similar to, or slightly less than, those identified under the Proposed Project (see Section 4.F, Noise and Vibration). Implementation of the Reduced Off-Haul Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **AIR QUALITY**

Under the Reduced Off-Haul Variant, construction-related air quality emissions would be generated by the same type of construction equipment as the Proposed Project. Under this variant demolition, excavation, site grading, and construction activities would be conducted according to the Proposed Project's construction phases (Phases 1 through 5). As with the Proposed Project, the multi-phased approach to project site development would result in simultaneous emissions from active construction phase(s) and the occupancy and operation of previously completed phases. As described above, the excavation activities under the Reduced Off-Haul Variant would be more limited than under the Proposed Project. As with the Proposed Project, implementation of dust control measures in compliance with the regulations and procedures set forth by the San Francisco Dust Control Ordinance would be required.

Due to the more limited excavation plan (and associated reduction in the amount of building construction) and the decrease in the number of construction truck trips with the reduction in the volume of earth movement under this variant, the contribution of on-road construction truck trips to the increase in the emissions of criteria air pollutants during the various construction phases

would be expected to be less than that generated under the Proposed Project. The reduction in on-road haul trips under the Reduced Off-Haul Variant would result in emission reductions of approximately 0.07 tons per year (tpy) of reactive organic gases (ROG), approximately 0.75 tpy of nitrous oxides (NO<sub>x</sub>), and a negligible amount (less than 0.01 tpy) of particulate matter and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) for Phases 2 through 5.<sup>4</sup> The resulting reductions in annual emissions are as follows:

- Maximum annual ROG emissions from the Proposed Project (approximately 4.6 tpy for Phase 2 of the Maximum Residential Scenario) – reduced to approximately 4.5 tpy;
- Maximum annual NO<sub>x</sub> emissions from the Proposed Project (approximately 8.2 tpy for Phase 2 of the Maximum Residential Scenario) – reduced to approximately 7.4 tpy;
- Maximum annual PM<sub>10</sub> emissions from the Proposed Project (approximately 0.34 tpy for Phase 2 of the Maximum Residential Scenario) – reduced to approximately 0.33 tpy; and
- Maximum annual PM<sub>2.5</sub> emissions from the Proposed Project (approximately 0.32 tpy for Phase 2 of the Maximum Residential Scenario) – reduced to approximately 0.31 tpy.

Although construction-related emissions of criteria air pollutants under the Reduced Off-Haul Variant would decrease, the decrease would be slight in relation to the projected emissions from the overall amount of construction and the overall number of construction truck trips estimated for the Proposed Project (see Table 4.G.6: Unmitigated Average Daily and Maximum Annual Emissions for the Maximum Residential Scenario During Construction, in Section 4.G, Air Quality, pp. 4.G.36-4.G.37, for the average daily and maximum annual emissions for the unmitigated Maximum Residential Scenario, and Table 4.G.8: Mitigated Average Daily and Maximum Annual Emissions for the Maximum Residential Scenario During Construction, pp. 4.G.54-4.G.55, for the mitigated scenario). Thus, the construction-related air quality impacts under this variant would be substantially the same as, or incrementally less than, those from the Proposed Project. As noted above the Reduced Off-Haul Variant would not include any changes to the Maximum Residential or Maximum Commercial Scenarios defined for the Proposed Project, and emissions associated with the occupancy and operation of the completed development Phases under this variant would be the same as those from the Proposed Project.

Thus, under the Reduced Off-Haul Variant, as with the Proposed Project, construction-related emissions during the concurrent construction of Phases 1 and 2 would be less than significant. However, the combined emissions from Phase 3 construction and the occupancy and operation of Phases 1 and 2; from Phase 4 construction and the occupancy and operation of Phases 1 through 3; and from Phase 5 construction and the occupancy and operation of Phases 1 through 4 would exceed the significance thresholds for certain criteria air pollutants. Therefore, under this variant, as with the Proposed Project, the combined criteria pollutant emissions generated during a

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<sup>4</sup> Environmental Science Associates, Reduced Off-Haul Variant Calculations, July 20, 2016.

construction phase and the occupancy and operation of a previously completed phase(s) would result in significant and unavoidable air quality impacts and the construction- and operational-related mitigation measures identified for the Proposed Project would be applicable to the Reduced Off-Haul Variant.

Under the Reduced Off-Haul Variant, as with the Proposed Project, toxic air contaminant (TAC) emissions from construction activities and, to a much lesser degree, project operations, would expose on- and off-site sensitive receptors to increased TAC emissions and PM<sub>2.5</sub> concentrations, the former of which would be significant without mitigation (for on-site sensitive receptors only). As discussed under Impact AQ-3 for the Proposed Project, the exposure of on- and off-site sensitive receptors to increased TAC emissions from construction equipment as well as stationary sources (e.g., diesel back-up generators) would be reduced to a less-than-significant level with implementation of Mitigation Measures M-AQ-1a: Construction Emissions Minimization, M-AQ-1b: Diesel Backup Generator Specifications, M-AQ-1c: Use Low- and Super-Compliant VOC Architectural Coatings in Maintaining Buildings through CC&Rs, and M-AQ-1f: Transportation Demand Management. These mitigation measures would be applicable to the Reduced Off-Haul Variant.

As with the Proposed Project, the Reduced Off-Haul Variant would be consistent with the 2010 Clean Air Plan, and impacts would be less than significant with implementation of the Transportation Demand Management Plan (TDM) (see “TDM Plan,” in Section 4.E, Transportation and Circulation, pp. 4.E.46-4.E.47), which includes strategies to discourage the use of automobiles and encourage transit and other modes of transportation. Other mitigation measures of the Proposed Project, identified under Impact AQ-1, that would also be applicable to the Reduced Off-Haul Variant in relation to being consistent with the 2010 Clean Air Plan are as follows:

- Mitigation Measure M-AQ-1a : Construction Emissions Minimization Plan (requiring low NOx emitting construction vehicles; requiring Tier 4, low-emissions construction vehicles),
- Mitigation Measure M-AQ-1b: Diesel Backup Generator Specifications (reducing NOx associated with operation)
- Mitigation Measure M-AQ-1f: Transportation Demand Management
- Mitigation Measure M-AQ-1g: Additional Mobile Source Control Measures (preferential parking and/or charging stations for fuel-efficient vehicles and a neighborhood electric vehicle program), and
- Mitigation Measure M-AQ-1h: Emissions Offset of Operational Emissions (implement replacement or repair of high-emitting vehicles).

Thus, as with the Proposed Project, the implementation of the TDM strategies and mitigation measures would ensure the project includes relevant transportation control measures specified in

the 2010 Clean Air Plan (see Impact AQ-4). The TDM Plan and mitigation measures would be applicable to the Reduced Off-Haul Variant ensuring that implementation of the Reduced Off-Haul Variant would also be less-than significant with mitigation.

As with the Proposed Project, the impacts of the Reduced Off-Haul Variant in terms of its creation of objectionable odors that would affect a substantial number of people (see Impact AQ-5) would be less than significant.

Based on the above, project-level and cumulative air quality impacts under the Reduced Off-Haul Variant would be similar to, or slightly less than, those identified under the Proposed Project (see Section 4.G, Air Quality). Implementation of the Reduced Off-Haul Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **GREENHOUSE GAS EMISSIONS**

A variety of controls are in place to ensure that development in San Francisco would not impair the State's ability to meet Statewide greenhouse gas (GHG) reduction targets outlined in AB 32, nor impact the City's ability to meet San Francisco's local GHG reduction targets. Projects that are consistent with San Francisco's GHG Reduction Strategy would not contribute significantly to global climate change. Similar to the Proposed Project, the Reduced Off-Haul Variant would be required to comply with these regulations and requirements that reduce GHG emissions (see Table 4.H.2: Regulations Applicable to the Proposed Project in Section 4.H, Greenhouse Gas Emissions, starting on p. 4.H.13). Since the Reduced Off-Haul Variant would comply with GHG reduction measures required in various City ordinances and would be consistent with all the regulations applicable to the Proposed Project, it would comply with San Francisco's Greenhouse Gas Reduction Strategy. Therefore, as with the Proposed Project, the Reduced Off-Haul Variant would have a less than cumulatively considerable contribution to significant cumulative GHG impacts.

Implementation of the Reduced Off-Haul Variant would result in fewer construction truck trips than the Proposed Project because of the reduction in the overall earth movement under this variant. Thus construction activities under this variant that would result in GHG emissions would not be as intensive as those for the Proposed Project.

The Reduced Off-Haul Variant would not alter the GHG emissions associated with operation of the Proposed Project because this variant would not change the two land use scenarios defined for the Proposed Project. As with the Proposed Project, this variant would introduce a mixed-use development in an area that is served by public transit, and would include Class I and Class II bicycle parking spaces, energy efficiency features beyond Title 24 requirements, low-impact



stormwater management design, water-efficient landscaping, water-conserving interior design, convenient recycling and composting, street trees, and other features consistent with San Francisco's ordinances and requirements. Similar to the Proposed Project, development would be consistent with the Sustainable Communities Strategy by including residential and commercial uses in a designated Priority Development Area per Plan Bay Area, furthering the region's goals for reducing GHG emissions. Implementation of local GHG reduction requirements would substantially reduce a project's GHG emissions. In addition, as described in Section 4.H, Greenhouse Gas Emission, implementation of air quality mitigation measures would also have the added benefit of further reducing GHG emissions from the Proposed Project. Mitigation Measures M-AQ-1a through M-AQ-1h, shown in Section 4.G, Air Quality, 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; encouragement of the use of transit and non-motorized modes of transportation; and emission offsets. These mitigation measures would also be applicable to the Reduced Off-Haul Variant and would further reduce the variant's less-than-significant GHG emissions.

Based on the above, GHG impacts under the Reduced Off-Haul Variant would be similar to, or slightly less than, those identified under the Proposed Project (see Section 4.H, Greenhouse Gas Emissions). Implementation of the Reduced Off-Haul Variant would not result in new or substantially more severe impacts and would not change the analysis or conclusions in that section.

## **WIND AND SHADOW**

### **Wind**

As described in Section 4.I, Wind and Shadow, the wind tunnel study prepared for the Proposed Project assumed full build-out of building volumes to the maximum zoned height (per Figure 2.13: Proposed Height Limits Plan, in Chapter 2, Project Description, p. 2.40) and cover the entire footprint of each parcel. For residential parcels, representative residential building typologies were modeled, while maximum envelope massings were used for commercial parcels. The area around Building 12 was modeled as flat (Grading Option 3, where the grade matches surrounding grades). However, the wind tunnel study did not account for the proposed increase to the project site's base elevation because proposed changes in grade were deemed insufficient to affect pedestrian-level wind speeds.

Maximum building heights relative to the surrounding grade under this variant would remain the same as under the Proposed Project. However, under this variant the base elevation on Parcels C2 and H2 would increase by approximately 2 feet, the base elevation on Parcel H1

would increase by approximately 4 feet, the base elevation on Parcel G would increase by approximately 6 feet; and the base elevation on Parcel F would increase by approximately 8 feet. The maximum base elevation on the other parcels would not change from those under the Proposed Project. The increased site grade elevation under the Reduced Off-Haul Variant would be in addition to the 5-foot increase to the project site's base elevation identified for the Proposed Project. The incremental change to the maximum building base elevation on Parcels C2, F, G, H1, and H2 would not be substantial enough to meaningfully alter the pedestrian level wind speeds or the wind speeds at the public rooftop open spaces identified for the Proposed Project. Under this variant, as with the Proposed Project, project-level and cumulative wind impacts on public areas at full build-out would be less than significant (see discussion under Impact WS-3).

Although project-level and cumulative wind impacts at full build-out would be less than significant, phased development under the Proposed Project or Reduced Off-Haul Variant could result in the temporary but substantial alteration of pedestrian level winds in and around public areas (see discussion under Impact WS-1). Furthermore, under this variant, as with the Proposed Project, wind speeds on rooftop public open spaces on Parcels C1 and C2 would also be substantially altered (see discussions under Impact WS-2). As stated above, the incremental change to the maximum building base elevations under this variant would not be substantial; therefore, the temporary wind impacts on public areas during phased development and the potential for wind hazards on public rooftop open spaces under the Reduced Off-Haul Variant would be the similar to those discussed for the Proposed Project, i.e., less than significant with mitigation. Thus, the mitigation and improvement measures identified for the Proposed Project would be applicable to the Reduced Off-Haul Variant.

## **Shadow**

As described in Section 4.I, Wind and Shadow, the shadow study prepared for the Proposed Project assumed full build-out under the height plan shown in Figure 2.13: Proposed Height Limits Plan, in Chapter 2, Project Description, p. 2.40; assumed building volumes that are built to the maximum height and cover the entire footprint of each parcel; assumed an additional 16 feet of height above the maximum height for each parcel to account for rooftop mechanical features; and accounted for the proposed increase to the project site's base elevation and the worst-case site-specific grading plan for Building 12 (Option 3).

Maximum building heights relative to the surrounding grade under this option would remain the same as under the Proposed Project. However, under the Reduced Off-Haul Variant the base elevation of the southwestern portion of the 28-Acre Site would be increased by approximately 2 to 8 feet (depending on location), which would be in addition to the 5-foot increase to the project site's base elevation identified for the Proposed Project. Under this variant the base elevation on Parcels C2 and H2 would increase by approximately 2 feet, the base elevation on

Parcel H1 would increase by approximately 4 feet, the base elevation on Parcel G would increase by approximately 6 feet; and the base elevation on Parcel F would increase by approximately 8 feet. No other elevation changes would be introduced under this variant.

This variant would have the potential to add an increment of net new shadow (over that of the Proposed Project) on planned parks and open spaces on the project site (which are included here for informational purposes only), existing and/or planned parks and open space in the project site vicinity, and future parks and open spaces. The additional shadow would be offset somewhat by a corresponding higher base elevation for the proposed open spaces on the project site under this variant. The incremental change to the maximum base elevation on these parcels would not be substantial enough to create net new shadow that could alter the usability of the existing and proposed parks, open spaces, and recreation areas. Therefore, project-level and cumulative shadow impacts under the Reduced Off-Haul Variant would be the similar to those discussed for the Proposed Project (see Section 4.I, Wind and Shadow).

Based on the above, project-level and cumulative wind and shadow impacts under the Reduced Off-Haul Variant would be similar to those identified under the Proposed Project (see Section 4.I, Wind and Shadow). Implementation of the Reduced Off-Haul Variant would not change the analysis or conclusions in that section, would not result in new or more severe impacts, and no new mitigation measures would be required.

## **BIOLOGICAL RESOURCES**

Under the Reduced Off-Haul Variant the depth and extent of excavation on Parcels C1, D, E1 through E4, H1, and H2 would be modified; the base elevation of the southwestern portion of the 28-Acre Site would be raised; a new north-south retaining wall would be constructed along the base of the remnant Irish Hill between new 21<sup>st</sup> and 22<sup>nd</sup> streets; and the proposed retaining wall along the north side of 22<sup>nd</sup> Street adjacent to Parcel C2 would be truncated. Thus, ground disturbance related to demolition, excavation, site preparation and grading, geotechnical stabilization, and the emplacement of new infrastructure systems within the existing and new public rights-of-way under this variant would not be as great as that for the Proposed Project. The Reduced Off-Haul Variant would not change any other aspect of the Proposed Project as it relates to the construction of shoreline improvements, geotechnical stabilization (i.e., installation of structural wall solutions on the bayside of Parcels B and H2); the construction of the transportation, open space, and utility infrastructure networks; and other site improvements.

As with the Proposed Project, noise, vibratory, and visual disturbance related to demolition, excavation, site grading, and other construction-related activities of the Reduced Off-Haul Variant would have the potential to affect terrestrial and marine biological resources. As with the Proposed Project, construction activities could disrupt birds attempting to nest in the vicinity of

the project site, disrupt parental foraging activity, or displace mated pairs with territories in the project vicinity; could disrupt local, common, or special-status bats that may roost in vacant buildings or existing trees on the project site; and could disrupt or interfere with wildlife movement, wildlife corridors, or wildlife nursery sites (See the separate discussions under Impacts BI-1, BI-2, and BI-5). Under the Reduced Off-Haul Variant there would be a reduction in the number of construction truck traffic trips due to the reduction in the volume of excavated soils; however, any noise reductions associated with the more limited excavation plan and the reduction in truck traffic trips would represent a minor reduction in the degree of the impact of the Proposed Project. The noise, vibratory, and visual disturbance reductions under this variant would not be substantial; thus, as with the Proposed Project, the impacts of the Reduced Off-Haul Variant on nesting birds would continue to require mitigation. Furthermore, since there would be no change to the Proposed Project's demolition or building preservation / rehabilitation plan under this variant, the impacts on local, common, or special-status bats would require mitigation. Therefore, the mitigation measures identified for the Proposed Project would be applicable to this variant. The implementation of these mitigation measures under this variant, as with the Proposed Project, would also address the effect of construction-related activities on wildlife movement, wildlife corridors, and wildlife nursery sites. Under the Reduced Off-Haul Variant, the introduction of new tall structures on the project site, which is located within the Pacific Flyway, would have the same potential to affect migratory birds; however, as with the Proposed Project, adherence to the City's Standards for Bird-Safe Buildings would ensure that this impact would be less than significant.

The Reduced Off-Haul Variant does not propose any changes to the construction of the shoreline improvements, geotechnical stabilization strategies, or other in-water construction activities. Thus, impacts on special-status marine species would be similar to those under the Proposed Project. As with the Proposed Project, best management practices (BMP) that would be implemented as part of San Francisco, San Francisco Bay Conservation and Development Commission (BCDC), and State Water Quality Control Board permit requirements as well as BMPs that would be implemented as part of the Erosion and Sediment Control Plan and Stormwater Pollution Prevention Plan (SWPPP) required under the National Pollution Discharge Elimination System (NPDES) Permit and Construction General Stormwater Permit would be applicable to the Reduced Off-Haul Variant. As described under Impact BI-3, implementation of these BMPs would protect water quality by limiting the potential for accidental discharges of polluted runoff, sediment, construction debris, etc. from entering San Francisco Bay waters. Thus, as with the Proposed Project, adherence to the BMPs identified in the local, State, and Federal permit requirements would ensure that impacts of the Reduced Off-Haul Variant on special-status marine species would be less than significant. Furthermore, under this variant, as with the Proposed Project, underwater construction activities related to the reconstruction of the steel sheet pile bulkhead in Reach II and repair and improvement of shoreline protective riprap

would have a less-than-significant impact on the temporary loss of the sessile marine invertebrate community currently present, loss of a small area of soft substrate intertidal habitat in Reach I and associated marine communities, and potential temporary disturbance to soft and hard substrate habitat and associated marine communities.

Under the Reduced Off-Haul Variant, as with the Proposed Project, underwater noise that would be generated as a result of the use of vibratory or impact pile-driving hammers during installation of the steel sheet pile or H-piling soldier wall for the repair of Shoreline Reach II bulkhead could have a significant impact on special-status aquatic species and marine mammals. Thus, the mitigation measure identified for the Proposed Project would be applicable to this variant. The implementation of Mitigation Measure M-BI-3: Pile Driving Noise Reduction for Protection of Fish and Marine Mammals under the Reduced Off-Haul Variant would address the effect of construction-related underwater noise on fish and marine mammals. Furthermore, under this variant, as with the Proposed Project, adherence to State and Federal regulatory permit requirements for project activities resulting in the discharge of San Francisco Bay fill or other disturbance to jurisdictional waters (i.e., below the high tide line, below the mean high water mark, and in areas subject to tidal action as well as being within the 100-foot-wide shoreline band) would require the development of a SWPPP to ensure that the potential for direct and indirect water quality degradation would be minimized, and the implementation of compensatory mitigation to offset the permanent placement of new fill resulting in the loss of jurisdictional waters. Thus, Mitigation Measure M-BI-4: Compensation for Fill of Jurisdictional Waters identified for the Proposed Project would be applicable to the Reduced Off-Haul Variant. And finally, as with the Proposed Project, the Reduced Off-Haul Variant would not conflict with local policies or ordinances protecting biological resources, e.g., the removal of a landmark tree, or conflict with adopted habitat conservation plan or natural community conservation plan since none exist on the project site.

Based on the above, project-level and cumulative biological resource impacts under the Reduced Off-Haul Variant would be similar to those identified under the Proposed Project (see Section 4.M, Biological Resources). Implementation of the Reduced Off-Haul Variant would not change the analysis or conclusions in that section, would not result in new or more severe impacts, and no new mitigation measures would be required.

## **GEOLOGY AND SOILS**

The Reduced Off-Haul Variant would not change the aspects of the Proposed Project related to the construction of shoreline improvements, geotechnical stabilization (i.e., installation of structural wall solutions on the bayside of Parcels B and H2); the construction of the transportation, open space, and utility infrastructure networks; or other site improvements. Under the Reduced Off-Haul Variant the depth and extent of excavation on Parcels D, C1, E1 through

E4, H1, and H2 would be modified; the base elevation of the southwestern portion of the 28-Acre Site would be raised; a new north-south retaining wall would be constructed along the base of the remnant Irish Hill between new 21<sup>st</sup> and 22<sup>nd</sup> streets; and the proposed retaining wall along the north side of 22<sup>nd</sup> Street adjacent to Parcel C2 would be truncated. Thus, ground disturbance related to demolition, excavation, and site preparation and grading would not be as great as that for the Proposed Project.

Under the Reduced Off-Haul Variant, the project site would be subjected to the same seismic hazards as would occur under the Proposed Project, including groundshaking, liquefaction, and lateral spreading (see Impact GE-1). As for the Proposed Project, construction of the proposed structures in compliance with the San Francisco and Port of San Francisco Building Codes would alleviate the effects of groundshaking under this variant.

Under this variant, each of the proposed new structures on Parcels E1 through E4, H1, and H2 would not include 15-foot-deep below-grade basement levels; the eastern portion of the proposed structure on Parcel C1 would not include a portion of the lower of the two below-grade basement levels; and the 15-foot-deep basement level for the proposed structure on Parcel D would be expanded. The foundation systems for these structures would, therefore, be different than those for the structures that would be constructed under the Proposed Project, but the foundation systems would be designed to withstand the effects of liquefaction and seismic settlement in accordance with the recommendations of site-specific geotechnical investigations conducted for these future developments.

As for the Proposed Project, the foundation design would depend on the depth to bedrock, presence of liquefiable materials, and the individual characteristics of the building (e.g., size, height, and depth of below-grade features) and would be subject to review and approval by the Department of Building Inspection (DBI) or Port as part of the building permit approval process. Therefore, appropriate design of the building foundations in accordance with the recommendations of the site-specific geotechnical report would ensure that impacts related to liquefaction and earthquake-induced settlement would be less than significant under the Reduced Off-Haul Variant, as for the Proposed Project. This variant, as with the Proposed Project, would require the project sponsor to implement measures to control the amount of lateral displacement that could occur. As described in Section 4.N, Geology and Soils, under Impact GE-1, lateral displacement measures for the Proposed Project could include actions such as reinforcing the existing slope with a structural wall or ground improvements, including the option of installing below-grade secant pile walls along the northeastern and southeastern portions of the project site. Thus, as with the Proposed Project, measures to ensure that the effects of liquefaction and lateral spreading would be less than significant would also be implemented under this variant. See discussions under Impacts GE-1 and GE-3.

As for the Proposed Project, soil movement for foundation and basement excavation, placement of fill to raise the site grade, and construction of shoreline improvements could create the potential for wind- and water-borne soil erosion. Under the Reduced Off-Haul Variant a larger area would be graded and a greater amount of the excavated fill would be placed on or retained at the site to raise the site grade, which would result in a greater potential for soil erosion than under the Proposed Project. However, as for the Proposed Project, impacts related to soil erosion would be less than significant with implementation of an erosion and sediment control plan prepared in accordance with Article 4.2, Section 146, of the San Francisco Public Works Code and a SWPPP prepared in accordance with the State Water Resources Control Board (SWRCB) General Construction Stormwater Permit (see Impact GE-2).

Similar to the Proposed Project, implementation of San Francisco and Port of San Francisco Building Code requirements for excavation shoring and dewatering, enforced through the building permit approval process, would ensure that impacts related to unstable geologic units as a result of soil excavation and excavation dewatering would be less than significant under the Reduced Off-Haul Variant (see Impact GE-3). However, less soil excavation and excavation dewatering would be conducted under this variant in relation to the Proposed Project because each of the proposed new structures on Parcels E1 through E4, H1, H2 would not include 15-foot-deep below-grade basement levels and the eastern portion of the proposed structure on Parcel C1 would not include a portion of the lower level of the two below-grade basement levels. While this variant would include the placement of approximately 5 percent more clean fill in relation to the Proposed Project, impacts related to differential settlement would remain less than significant with measures such as proper foundation design and scheduling fill emplacement early in the construction process to facilitate settlement of the Bay Mud prior to construction of the proposed improvements.

Under the Reduced Off-Haul Variant, as with the Proposed Project, impacts on structures and future site occupants/visitors of the Illinois Parcels (Parcels HDY1, HDY2, PKN, and PKS) as a result of rock fall hazards associated with potentially unstable bedrock cuts on the remnant of Irish Hill would be significant and mitigation would be required. Therefore, the mitigation measure identified for the Proposed Project, i.e., Mitigation Measure M-GE-3a: Reduction of Rock Fall Hazards on p. 4.N.31, would be applicable to the Reduced Off-Haul Variant. Additionally, under this variant, as with the Proposed Project, hazards associated with use of the dilapidated pier extending from the project site into the San Francisco Bay by future site occupants/visitors would also be significant and mitigation would be required. Therefore, the mitigation measure identified for the Proposed Project, Mitigation Measure M-GE-3b: Signage and Restricted Access to Piers on pp. 4.N.31-4.N.32, would be applicable to the Reduced Off-Haul Variant.

The site soils are not considered expansive, but could be moderately to severely corrosive which has the potential to damage structures and utilities. Structures constructed under the Reduced Off-Haul Variant would encounter the same soils as those constructed under the Proposed Project. However, as for the Proposed Project, buried features constructed under this variant would be constructed to resist corrosion in accordance with the San Francisco and Port of San Francisco Building Codes which would ensure that impacts related to problematic soils would be less than significant (see Impact GE-4).

The 5-foot increase to the base elevation on the project site contemplated under the Proposed Project would not result in a substantial change in topography because no existing slopes would be eliminated and no new slopes would be created, as described under Impact GE-5. Under the Reduced Off-Haul Variant the 2- to 8-foot additional increase to the base elevation on the portion of the 28-Acre Site comprised of Parcels C2, E1 through E4, F, G, H1, and H2 and the adjacent public rights-of-way, e.g., new Maryland, Louisiana, 21<sup>st</sup>, and 22<sup>nd</sup> streets would change existing slopes and create new slopes. As noted, the project site has varying topography with a west-to-east trending slope to the San Francisco Bay shoreline with a change in elevation of approximately 30 feet from the western edge of the 28-Acre Site to the San Francisco Bay shoreline. Although the proposed increase to the project site's base elevation under the Reduced Off-Haul Variant would range from 7 to 13 feet and would alter the existing topography (in terms of the direction of slopes at discrete locations and the gradient) the changes would not be substantial. Further, this variant would include the same changes to the remnant of Irish Hill as would the Proposed Project. Therefore, as with the Proposed Project, impacts under the Reduced Off-Haul Variant related to alteration of topography and unique geologic or physical features of the project site would be less than significant.

As discussed under Impact GE-6, sedimentary rocks of the Franciscan Complex have produced significant fossils important for understanding the age, depositional environments, and tectonic history of San Francisco. The Franciscan Complex bedrock is close to the ground surface west of the historic shoreline, which includes Parcels C1, D, H1, and portions of Parcels E1 through E4. Under the Reduced Off-Haul Variant, less Franciscan Complex bedrock would be excavated because excavation would not occur on Parcels E1 through E4 and H1, and excavation in the eastern portion of Parcel C1 would be 12 feet shallower. While the footprint for the 15-foot-deep excavation on Parcel D would be expanded, overall the Reduced Off-Haul Variant would result in less excavation of Franciscan Complex bedrock than would occur under the Proposed Project, and would therefore have less of a potential to encounter paleontological resources. Regardless, as with the Proposed Project, mitigation identified for the Proposed Project (Mitigation Measure M-GE-6: Paleontological Resources Monitoring and Mitigation Program on pp. 4.N.33-4.N.34) would be applicable to the Reduced Off-Haul Variant. Implementation of this mitigation measure



would reduce this impact to a less-than-significant level ensuring that a substantial adverse change to the scientific significance of a paleontological resource would not occur.

Based on the above, project-level and cumulative geology and soils impacts under the Reduced Off-Haul Variant would be similar to those identified under the Proposed Project (see Section 4.N, Geology and Soils). Implementation of the Reduced Off-Haul Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **HYDROLOGY AND WATER QUALITY**

Under the Reduced Off-Haul Variant the depth and extent of excavation on Parcels C1, D1, E1 through E4, H1, and H2 would generally be reduced and the base elevation of the southwestern portion of the 28-Acre Site would be raised. The Reduced Off-Haul Variant would not change aspects of the Proposed Project related to the construction of shoreline improvements; geotechnical stabilization (e.g., installation of structural wall solutions on the bayside of Parcels B and H2); the construction of the transportation, open space, and utility infrastructure networks; and other site improvements. Thus, ground disturbance related to demolition, excavation, site preparation and grading, geotechnical stabilization, and the emplacement of new infrastructure systems within the existing and new public rights-of-way under this variant would not be as great as that for the Proposed Project (including both scenarios; the combined, separate, or hybrid options for stormwater/wastewater management, and the three options for grading around Building 12).

There would be less of a potential for soil erosion and related water quality impacts under this variant because of the reduced amount of ground disturbance. As with the Proposed Project, construction-related stormwater discharges to the combined sewer system, the separate stormwater system, or directly to the San Francisco Bay under this variant would not cause water quality degradation and would not violate water quality standards or waste discharge requirements because they would be governed by Article 4.2, Section 146, of the San Francisco Public Works Code and the SWRCB Construction General Stormwater Permit, depending on the chosen sewer/wastewater management option (see discussion under Impact HY-1 for additional detail regarding the stormwater/wastewater management options and the applicability of local, State, and Federal regulatory requirements). Implementation of these regulatory requirements would ensure that water quality impacts as a result of construction-related discharges of stormwater would be less than significant.

The Reduced Off-Haul Variant includes the same in-water construction activities as the Proposed Project, including construction of shoreline improvements, repair of the existing 20<sup>th</sup> and 22<sup>nd</sup> Street combined sewer discharge (CSD) structures, and construction of a new stormwater outfall

(if a separate storm drain system is constructed). As described under Impact HY-1, these in-water construction activities would be subject to the requirements of a Section 10 or Section 404 permit from the Army Corps of Engineers that would receive water quality certification from the Regional Water Quality Control Board in accordance with Section 401 of the Clean Water Act. Furthermore, the placement of fill below the mean high water mark would be subject to a permit from the BCDC. Implementation of water quality control measures as part of compliance with the requirements of the Section 10, Section 404, and BCDC permits would ensure that the temporary water quality impacts related to in-water construction activities would be less than significant.

The magnitude of required excavation dewatering would be less under this variant because there would be less excavation for basements, but as with the Proposed Project, the discharges would be subject to Article 4.1 of the Public Works Code, as supplemented by Order No. 158170, or NPDES permit requirements, depending on whether the groundwater would be discharged to the combined sewer system or to the San Francisco Bay. Thus, under the Reduced Off-Haul Variant, as with the Proposed Project, groundwater discharges would not result in violations of a water quality standard or waste discharge requirement and water quality impacts related to the groundwater discharges would be less than significant.

Under the Reduced Off-Haul Variant, the base elevation on the interior portions of the 28-Acre Site and the low-lying portions of the Illinois Parcels would be raised higher than would occur under the Proposed Project. On and around Parcels C2 and H2 the base elevation would be about 2 feet higher, and on or around Parcel F the base elevation would be about 8 feet higher. This increase in elevation would slightly alter the existing topography in terms of the direction and degree of some slopes. However, as with the Proposed Project, compliance with Article 4.2 of the San Francisco Public Works Code, Section 147 and implementation of Stormwater Control Plans required under the Stormwater Management Requirements and Design Guidelines would ensure that stormwater runoff flow rates and volumes would either be reduced or maintained at existing levels. With this compliance, changes in the site topography would not result in changes to existing drainage patterns that would cause substantial erosion, siltation, or flooding on or off site (see Impact HY-4).

The Reduced Off-Haul Variant would include the same land uses as would occur under the Maximum Residential or Maximum Commercial Scenarios defined for the Proposed Project. The volume and rate of stormwater runoff under this variant would be the same as would occur under the Proposed Project as would the potential for littering. Under this variant, as with the Proposed Project, the combined sewer system or separate storm drain system would be designed to accommodate the 5-year storm and the public rights-of-way would be designed to accommodate and direct 100-year flood flows in excess of the 5-year storm to the San Francisco Bay in

accordance with the City's Subdivision Regulations as discussed in Impact HY-2. This and compliance with the Article 4.2, Section 147, of the San Francisco Public Works Code would ensure that stormwater flows from the project site do not exceed the capacity of the storm drain system, provide an additional source of stormwater pollutants, or violate water quality standards or waste discharge requirements. This variant would also be subject to the same regulatory requirements related to trash and litter management as would the Proposed Project. Therefore, impacts related to these topics would be less than significant, as for the Proposed Project.

Because the Reduced Off-Haul Variant would result in the same volume of wastewater and stormwater discharges as would the Proposed Project, the potential effect on the frequency of CSDs from the 20<sup>th</sup> Street sub-basin would be the same as would occur under the Proposed Project (see Impact HY-2). This variant includes the construction of a new pump station, as does the Proposed Project. However, without sufficient pumping capacity, the new pump station could cause the frequency of CSDs from the 20<sup>th</sup> Street sub-basin and/or downstream basins to increase beyond the long-term average of 10 CSD events per year, in violation of the Bayside NPDES permit and this would be a significant impact. Thus, as with the Proposed Project, operational-related mitigation measures identified for the Proposed Project would be applicable to the Reduced Off-Haul Variant.

As with the Proposed Project, the Reduced Off-Haul Variant would not result in depletion of groundwater resources because, other than the pumping of groundwater during construction dewatering, this variant would not involve the use or extraction of groundwater. Rather, as with the Proposed Project, potable water would be provided by the San Francisco Public Utilities Commission (SFPUC), and non-potable water would be obtained from various sources in accordance with the City's Non-potable Water Ordinance. Further, this variant would not interfere with groundwater recharge because the change in impervious surfaces would be the same as would occur under the Proposed Project (see Impact HY-3). Therefore, under this variant, as with the Proposed Project, impacts related to depletion of groundwater resources and interference with groundwater recharge would be less than significant.

The Reduced Off-Haul Variant includes construction of the same shoreline improvements as the Proposed Project. Thus, the proposed top of bank elevation along the entire shoreline would be above the existing 100-year flood elevation; the projected future flood levels (even when a 100-year storm surge is considered in combination with the worst case scenario projected sea-level rise of 66 inches by 2100); and the estimated tsunami flood elevation (see Impacts HY-5 and HY-7). The final slopes along the waterfront would be similar to existing conditions and the new and improved revetments along the shoreline would not substantially alter the patterns of existing or future flood flows at the project site or in the vicinity. As with the Proposed Project, none of the proposed residences would be constructed within an existing or projected 100-year

flood zone. Therefore, impacts related to existing flooding, future flooding, and tsunami inundation would be less than significant, as for the Proposed Project.

Based on the above, project-level and cumulative hydrology and water quality impacts under the Reduced Off-Haul Variant would be similar to those identified under the Proposed Project (see Section 4.O, Hydrology and Water Quality). Implementation of the Reduced Off-Haul Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **HAZARDS AND HAZARDOUS MATERIALS**

Under the Reduced Off-Haul Variant the depth and extent of excavation on Parcels C1, D, Parcels E1 through E4, H1, and H2 would generally be reduced and the base elevation of the southwestern portion of the 28-Acre Site would be raised. The Reduced Off-Haul Variant would not change other aspects of the Proposed Project related to the removal of the northern portion of the remnant Irish Hill for the construction of new 21<sup>st</sup> Street; construction of shoreline improvements; geotechnical stabilization (e.g., installation of structural wall solutions on the bayside of Parcels B and H2); the construction of the transportation, open space, and utility infrastructure networks; and other site improvements, including the Irish Hill Playground. Thus, ground disturbance related to demolition, excavation, site preparation and grading, geotechnical stabilization, and the emplacement of new infrastructure systems within the existing and new public rights-of-way under this variant would not be as great as that for the Proposed Project (including both scenarios, the three options for stormwater/wastewater management, and the three options for grading around Building 12).

The Reduced Off-Haul Variant would include less construction than would occur under the Proposed Project because of the decreased soil excavation volumes and elimination of basements at selected locations on the 28-Acre Site, and the elimination of a portion of one of the two below-grade basement levels on Parcel C1. Therefore, there would be less use of hazardous materials during construction. As for the Proposed Project, impacts related to use of hazardous materials during construction would be less than significant with implementations of an erosion and sediment control plan in accordance with Article 4.2 of the San Francisco Public Works Code or SWPPP in accordance with the SWRCB General Construction NPDES permit (see Impact HZ-1). These plans would identify hazardous materials sources within the construction area and recommend site-specific BMPs to prevent discharge of these materials into stormwater and San Francisco Bay waters.

Because the Reduced Off-Haul Variant would include the same land uses as would occur under the Proposed Project, it would include the same use of hazardous materials and generation of hazardous waste during operation. As for the Proposed Project, the use, storage, and management

of hazardous materials and wastes in accordance with Articles 21 and 22 of the San Francisco Health Code would ensure that impacts related to the routine use, transport, and disposal of hazardous materials during operation would be less than significant.

The Reduced Off-Haul Variant would involve demolition and renovation of the same buildings as would occur under the Proposed Project. As with the Proposed Project, compliance with Bay Area Air Quality Management District (BAAQMD) Rule 11, Regulation 2; Section 3426 of the Port of San Francisco Building Code; Occupation Safety and Health Administration Lead in Construction Standard; and other applicable regulatory requirements would ensure that impacts related to exposure to hazardous building materials would be less than significant (see Impact HZ-2). As for the Proposed Project, significant impacts related to the removal of polychlorinated biphenyl (PCB)-containing electrical transformers would occur under this variant. Thus, Mitigation Measures M-HZ-2a: Conduct Transformer Survey and Remove PCB Transformers, M-HZ-2b: Conduct Sampling and Cleanup if Stained Building Materials Are Observed, and M-HZ-2c: Conduct Soil Sampling if Stained Soil Is Observed, identified for the Proposed Project on p. 4.P.58, would also be applicable to this variant.

The Reduced Off-Haul Variant would involve excavation of approximately 56 percent less soil than would the Proposed Project. However, during construction the public, including students and staff at nearby schools as well as occupants of adjacent parcels that have previously been developed, could still be exposed to chemicals in the soil through inhalation of airborne dust, contact with accumulated dust, and contaminated runoff (see Impact HZ-3). As for the Proposed Project, impacts related to exposure to chemicals in the soil and groundwater during construction would be less than significant with implementation of Mitigation Measures M-HZ-3a: Implement Construction and Maintenance-Related Requirements of the Pier 70 Risk Management Plan and M-HZ-4: Implement Construction-Related Measures of the Hoedown Yard Site Management Plan. The Reduced Off-Haul Variant would also have the same potential to damage existing groundwater monitoring wells. However, as for the Proposed Project, this impact would be less than significant with implementation of Mitigation Measure M-HZ-3b: Implement Well Protection Requirements of the Pier 70 Risk Management Plan. As for the Proposed Project, implementation of Mitigation Measures M-HZ-3a and M-HZ-4 would also ensure that students and workers at nearby schools are not exposed to unacceptable levels of natural-occurring asbestos and metals under this variant (see Impact HZ-8). Because less construction would be conducted, the students and workers at nearby schools would also be exposed to less diesel particulate matter emissions and impacts associated with exposure to these emissions would remain less than significant.

The Reduced Off-Haul Variant would not include any changes to the Maximum Residential or Maximum Commercial Scenarios of the Proposed Project and the footprint of the proposed

developments would be approximately the same as the Proposed Project. Therefore, impacts related to the potential to interfere with PG&E's remediation of the PG&E responsibility area (which includes a portion of Parcel H1 and H2 and the southernmost part of the Waterfront Promenade, adjacent to the former Potrero Power Plant<sup>5</sup>) and exposure to chemicals in the soil within the Hoedown Yard during operation would be substantially the same as those discussed for the Proposed Project (see discussions under Impact HZ-5 and Impact HZ-7). As for the Proposed Project, these impacts would be less than significant with implementation of Mitigation Measures M-HZ-5: Delay Development on Parcel H2 Until Remediation of the PG&E Responsibility Area is Complete and M-HZ-7: Modify Hoedown Yard Site Mitigation Plan. Residential uses on Parcel H1 would not include a basement under the Reduced Off-Haul Variant which would result in less of a potential for adverse health effects due to vapor intrusion, but implementation of Mitigation Measure M-HZ-6: Additional Risk Evaluations and Vapor Control Measures for Residential Land Uses would still be required for this variant to ensure that impacts to residential users would be less than significant.

Similar to the Proposed Project, future site occupants and users of the future Irish Hill Playground could be exposed to naturally-occurring asbestos and metals under the Reduced Off-Haul Variant. Because the land uses would be the same under this variant, including the use of the Irish Hill Playground, Mitigation Measures M-HZ-8a: Prevent Contact with Serpentine Bedrock and Fill Materials and M-HZ-8b: Restrictions on the Use of Irish Hill Playground would also be required to reduce this impact to a less than significant level.

Based on the above, project-level and cumulative hazards and hazardous materials impacts under the Reduced Off-Haul Variant would be similar to those identified under the Proposed Project (see Section 4.P, Hazards and Hazardous Materials). Implementation of the Reduced Off-Haul Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

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<sup>5</sup> Haley & Aldrich, Draft Remedial Action Plan, Northeast Area of the Potrero Power Plant Site and a Portion of the Southeast Area of Pier 70, Potrero Power Plant Site, San Francisco, California, July 7, 2015.

## **B. DISTRICT ENERGY SYSTEM VARIANT**

### ***Introduction***

A district energy system for the 28-Acre Site and the Illinois Parcels is being explored; therefore, it is analyzed as a variant to the Proposed Project.<sup>6</sup> The District Energy System Variant is an infrastructure-related variant. It would involve the development of a central plant in the basement level of Parcel C1 and would link the space heating and cooling systems of all proposed buildings to a closed thermal loop that would circulate low temperature water via a network of subsurface pipelines. This district energy system would be developed in place of the separate heating and cooling systems assumed for each building under the Proposed Project. The Proposed Project assumes that each building's heating and cooling demand would be met by natural gas supplied by PG&E, electricity supplied by SFPUC, and/or renewable power generated on the project site (e.g., roof-mounted or building-integrated solar photovoltaic (PV) systems and/or roof-mounted solar thermal hot water systems for all proposed buildings, if implemented). A centralized energy system generally provides higher efficiencies than boilers and chillers located in each individual building used to meet space heating and cooling demand.

The District Energy System Variant does not include any changes to the land use programs for the Maximum Residential or Maximum Commercial Scenarios defined for the Proposed Project. As discussed in Chapter 2, Project Description, the above-grade development options for Parcel C1 include development of an above-grade parking structure, a residential building, or commercial building. The Parcel C1 development options would remain applicable to this variant. The land use programs and project site improvements would be implemented in a similar fashion as that for the Proposed Project.

### ***Description***

Under the District Energy System Variant, building space heating and space cooling systems within the project site would be linked together via an underground shared energy distribution and exchange loop. This variant would include a single central plant with boilers and chillers to regulate the water temperature circulating in the network of subsurface pipes and laterals leading to all buildings on the 28-Acre-Site. The central plant would be located in the basement of a building on Parcel C1, which is located at the corner of new Louisiana and 21<sup>st</sup> streets. Development of Parcel C1 could be an above-grade parking structure, a residential building, or commercial building; all with two below-grade basement levels.

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<sup>6</sup> Forest City, *Draft Pier 70 Sustainability Plan*, January 2016 Draft, Section 7.1 Climate Protection and Energy Efficiency, pp. 58-59.

The central plant would have a footprint of approximately 8,000 to 14,000 square feet, depending on the equipment used. Exhaust ducts would be required on the roof or façade. The central plant would contain heat exchangers, pumps, boilers, and other ancillary equipment. Up to five 15- to 29-foot-tall cooling towers would be located on the roof or would be located adjacent to the building and would obviate the need, under the Proposed Project, for a mechanical cooling tower located on the roof of each building.

The water would be heated using one or more natural gas-fired boilers and cooled with electric chillers tied to centralized cooling towers. The single central energy plant would circulate the conditioned water to individual buildings via a thermal distribution network located under the proposed street network. The pipeline system would be located at a depth consistent with other standard water pipelines and connect to each building on the project site via laterals.

Similar to the Proposed Project, the district energy system would not provide hot water to the buildings; hot water would be provided from separate heat pumps in each building. Each building on the project site would have heat pumps and a point-of-connection to the energy distribution loop tied to the water loop to provide space heating, hot water, and cooling to more efficiently meet building thermal demands. Buildings that require heat would remove heat from the loop. Buildings that require cooling would reject that heat by pumping heated water into the loop, thereby enhancing the efficiency of each building's heating, ventilation, and air conditioning (HVAC) system. The peak water flow capacity of the closed loop system would be approximately 9,000 gallons per minute. The desired temperature range of the water in the loop would be 50°F to 90°F. To maintain the loop at a desired temperature, the central plant would use natural-gas fired boilers to increase heat and cooling towers to reject heat.

## **PROPOSED CONSTRUCTION PHASING**

Under the District Energy System Variant, demolition, excavation, site grading, and construction activities would be conducted according to the construction phases described in Chapter 2, Project Description, and would be substantially the same as under the Proposed Project. The district energy system's central plant would be constructed as part of Phase 2 under the Maximum Residential Scenario as part of the development of Parcel C1. Under the Maximum Commercial Scenario the conceptual timeline for the development of Parcel C1 may be altered (from Phase 4 under the Proposed Project to Phase 2 under the District Energy System Variant to accommodate the central plant. Under either scenario, the associated piping system would be constructed according to the construction phases detailed in Chapter 2, Project Description, Tables 2.5 and 2.6, pp. 2.80-2.81 and p. 2.84. The District Energy System Variant would include demolition of the same buildings as well as construction of the same shoreline improvements and transportation, utility, and open space networks. The District Energy System Variant would not change any aspect of the Proposed Project related to demolition, excavation, and site grading; the



construction of shoreline improvements; geotechnical stabilization; the construction of the transportation, open space, and utility infrastructure networks; or other improvements such as the construction of the new 20<sup>th</sup> Street pump station. Proposed development is expected to involve up to five phases (Phases 1 through 5) and is conceptual; however construction is expected to begin in 2018 and would be phased over an approximately 11-year period, concluding in 2029. As with the Proposed Project, the multi-phased approach to project site development would result in project site occupancy and operations overlapping with, and being affected by, future construction phases.

### ***Proposed Land Use Programs***

The District Energy System Variant does not include any changes to the land use programs for the Maximum Residential Scenario or Maximum Commercial Scenario defined for the Proposed Project or changes to the proposed open space network, traffic and circulation plan, new infrastructure and utility plans, geotechnical stabilization plan, or the shoreline improvement plan described in Chapter 2, Project Description.

### ***Impact Evaluation***

#### **APPROACH TO ANALYSIS**

The District Energy System Variant does not involve any change to the mix of land uses, the space allocation of uses, or the residential unit count under the Maximum Residential and Maximum Commercial Scenarios of the Proposed Project. Likewise, this variant would not involve any change to the locations, configurations, or building envelopes of the programmed development under the two scenarios analyzed for the Proposed Project. While expected to be located in a basement on Parcel C1, the physical plant would not involve additional excavation beyond that already assumed for the Proposed Project; therefore it would not change the effects of the Proposed Project on archaeological resources or the effects of geology and soils. The cooling tower would be 20 feet tall or less with similarly-sized diameter. These features of the physical plant would be considerably shorter than the tallest buildings assumed to be on the project site under either scenario, and therefore would have no material effect on pedestrian-level wind conditions and would not cast notable shadows. Excavation and construction techniques used to install the thermal loop pipeline throughout the site would be the same as those used to install other utility piping. Based on this description, physical environmental effects under this variant would be substantially the same as those identified for the Proposed Project for the following environmental topics: Land Use and Land Use Planning, Population and Housing, Cultural Resources (Archaeological Resources and Historic Architectural Resources), Wind and Shadow, Recreation, Public Services, Biological Resources, Geology and Soils, and Agricultural

and Forest Resources. All mitigation and improvement measures described for these topics under the Proposed Project would be applicable to this variant.

The following environmental topics are analyzed for this variant: Transportation and Circulation, Noise and Vibration, Air Quality, Greenhouse Gas Emissions, Utilities and Service Systems, Hydrology and Water Quality, Hazards and Hazardous Materials, and Mineral and Energy Resources.

## **TRANSPORTATION AND CIRCULATION**

Demolition, excavation, site grading, and construction activities under the District Energy System Variant would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. Under this variant the district energy system facility would be installed during the second construction phase as part of the development of Parcel C1) and would be located at the basement level of the new building on Parcel C1. The associated collection and distribution pipeline system would be emplaced within the public right-of-way at the same time as the construction of the proposed transportation and utility infrastructure networks and the adjacent Parcels. As a result there would be no additional construction truck traffic trips associated with central plant component of this variant as Parcel C1 would also be developed as part of the Proposed Project. However, there would be a slight increase in construction truck traffic trips for the transport and installation of the various equipment that constitute the district energy system facility including the subsurface pipelines and the cooling tower(s). Construction truck traffic associated with constructing and installing equipment for the District Energy System Variant would thus make up a relatively small portion of the construction truck traffic generated during each construction phase. As discussed under Impact TR-1 for the Proposed Project, this variant would also use the same construction truck traffic routes (e.g., Third Street and either 25<sup>th</sup> or Mariposa streets to access I-280 to travel south; Third Street and either Second or Fifth streets to reach the Bay Bridge and the East Bay; and Third Street, Howard Street, and Van Ness Avenue (U.S. 101) to travel to North Bay destinations). The temporary (and less than significant) impacts associated with construction-related traffic of the Proposed Project are described under Impact TR-1, and that impact analysis would be applicable to this variant because the amount of construction truck traffic specific to the implementation of this variant would be minimal and would not lead to a different conclusion.

The District Energy System Variant would not result in substantial increases in operational VMT because it does not alter the development scenarios for the Proposed Project. With respect to operational impacts, the maintenance needed at individual buildings with a centralized system as under the District Energy System Variant would be less than that needed to maintain separate heating and cooling systems in each building under the Proposed Project. Therefore there could be slightly fewer service truck trips to and from the project site for maintenance activities with the

District Energy System Variant. Any reduction in service truck trips would be small and would not substantially affect total vehicle miles traveled as a result of operations of the Proposed Project. There would be no change to transit, pedestrian, or bicycle effects from the District Energy System Variant. Delivery of supplies for operation and maintenance of the central plant would be similar to loading activities described for the Proposed Project, and would not substantially increase the demand for loading facilities. Emergency access would not be expected to be affected by a district energy system located within and adjacent to proposed new buildings on the project site. The truck trips associated with the maintenance and operation of the central plant under the District Energy System Variant (e.g., centralized activities as opposed to being dispersed throughout the project site) would change the circulation patterns on the project site but the change would be minimal. Therefore, operational-related project-level and cumulative transportation and circulation impacts under the District Energy System Variant would be substantially the same as those discussed for the Proposed Project (see Section 4.E, Transportation and Circulation). Thus, all operational-related mitigation measures identified for the Proposed Project would be applicable to the District Energy System Variant (i.e., Mitigation Measure M-TR-5: Monitor and increase capacity on the 48 Quintara/24<sup>th</sup> Street bus routes as needed [pp. 4.E.91 to 4.E.93] under Impact TR-5; Mitigation Measure M-TR-10: Improve pedestrian facilities on Illinois Street adjacent to and leading to the project site [pp. 4.E.99-4.E.100] under Impact TR-10; Mitigation Measure M-TR-12a: The Project's Transportation Coordinator should coordinate with building tenants and delivery services to minimize deliveries during a.m. and p.m. peak periods [p. 4.E.105] under Impact TR-12; Mitigation Measure M-TR-12b: Monitor loading activity and convert general purpose on-street parking spaces to commercial loading spaces, as needed [p. 4.E.105] under Impact TR-12; Mitigation Measure M-C-TR-4a: Increase capacity on the 48 Quintara/24<sup>th</sup> Street bus route under the Maximum Residential Scenario [p. 4.E.118] under Impact C-TR-4; and Mitigation Measure M-C-TR-4b: Increase capacity on the 22 Fillmore bus route under the Maximum Commercial Scenario [p. 4.E.118] under Impact C-TR-4). The proposed modifications to the below-grade parking program under this variant (i.e., removal of a portion of one of the two basement levels on Parcel C1) would not result in any changes to the overall parking program. Parking spaces that would not be available under this variant would be provided in building podiums and as part of a structured parking program on Parcels C1 and C2 (if implemented).

Based on the above, project-level and cumulative transportation and circulation impacts under the District Energy System Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.E, Transportation and Circulation). Implementation of the District Energy System Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **NOISE AND VIBRATION**

Construction of District Energy System Variant facilities would cause temporary construction noise. Construction noise would be similar to or the same as that discussed for construction of the Proposed Project in Section 4.F, Noise and Vibration. Mitigation Measure M-NO-1, pp. 4.F.33-4.F.35, would decrease construction noise levels by requiring construction contractors to implement noise reduction measures for construction activities. If the central plant and cooling tower were constructed in one of the later phases of project buildout, it could contribute to the significant construction noise impact on new residents living in residential buildings constructed in an earlier phase, as identified in Impact NO-2. This would not be a new significant impact from construction of the variant, but construction of the variant could contribute to this significant impact. Similarly, construction of the central plant and/or cooling tower would contribute to significant construction noise impacts if pile driving were required and vibratory pile driving methods included in Mitigation Measure M-NO-2 were determined to be infeasible. With implementation of Mitigation Measures M-NO-1 and M-NO-2, construction of the variant would not result in new significant construction-related impacts not already identified for the Proposed Project nor would this variant exacerbate (or make more severe) the identified impacts (see Section 4.F, Noise and Vibration).

With respect to operational impacts, the central plant would generate mechanical noise. Because the central plant is proposed to be located in the basement of a building, noise-generating equipment would be shielded by the building structure. Since the cooling tower is considered to be mechanical equipment (i.e., it has fans and other mechanical features that produce noise), implementation of Mitigation Measure M-NO-4a: Stationary Equipment Noise Controls, would ensure that noise attenuating features such as a noise reducing shield would achieve the necessary noise reduction to meet the City's Noise Ordinance, as with the Proposed Project. Therefore, operational noise impacts under the variant would not change the conclusions or mitigation measures identified in Section 4.F, Noise and Vibration, for the Proposed Project.

Based on the above, project-level and cumulative noise and vibration impacts under the District Energy System Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.F, Noise and Vibration). Implementation of the District Energy System Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **AIR QUALITY**

Construction and installation of the District Energy System Variant would result in temporary construction dust and temporary emissions from construction equipment and trucks. These construction air quality impacts would be similar to, but slightly greater than, those described for

the Proposed Project (see Section 4.G, Air Quality, Impact AQ-1) since they are part of the development of Parcel C1. However, there would be an incremental increase in construction truck trips over that for the Proposed Project due to construction of the plant and materials delivery, i.e., equipment and associated piping system. The Construction Dust Control Ordinance would be applicable to construction of the District Energy System Variant, as with other construction activities for the Proposed Project. The same construction mitigation measure for the Proposed Project, Mitigation Measure M-AQ-1a: Construction Emissions Minimization on pp. 4.G.42-4.G.44, would apply to the District Energy System Variant facilities if the construction of the particular component of this system were to occur during construction of Phases 3, 4, and 5, or after buildout of 1.3 million gross square feet of development, whichever comes first. Construction of the District Energy System Variant would contribute to a significant and unavoidable air quality impact if it was constructed during later phases of the Proposed Project when operational emissions from earlier phases are also accounted for, even with implementation of Mitigation Measure M-AQ-1a and relevant operational mitigation measures (Mitigation Measures M-AQ-1b through M-AQ-1h), as discussed for the Proposed Project on pp. 4.G.42-4.G.51.

Regarding operations, the District Energy System Variant would likely produce less criteria pollutant emissions related to natural gas burning than the Proposed Project because the centralized plant would be more efficient and would burn less natural gas than individual heating equipment in each building under the Proposed Project. New boilers would require permits from the BAAQMD that would place conditions on emissions and annual operations. Emissions from the District Energy System Variant would contribute to daily and annual increases in emissions from the Proposed Project, but could result in somewhat reduced emissions due to the efficiency of such a system as compared to the Proposed Project. There is not enough detail available about the District Energy System Variant to determine whether the reduction in emissions would substantially reduce the significant air quality impacts identified in Impact AQ-2, but based on the level of emissions calculated for the Proposed Project, it is not expected that any reductions achieved as a result of implementing the District Energy System Variant would reduce the significant impact to a less-than-significant level. Therefore, as with the Proposed Project, operational air quality impacts under this variant would be significant and unavoidable with mitigation.

As discussed under Impact AQ-3, the exposure of off-site sensitive receptors to excess cancer risk due to TAC emissions from construction and operation would be less than significant under the Proposed Project. As further discussed under Impact AQ-3), the exposure of on-site sensitive receptors (after completion of Phases 1 and 2) to excess cancer risk due to TAC emissions from construction and operation would be reduced to less-than-significant levels with implementation of Mitigation Measures M-AQ-1a: Construction Emissions Minimization, M-AQ-1b: Diesel

Backup Generator Specifications, M-AQ-1c: Use Low- and Super-Compliant VOC Architectural Coatings in Maintaining Buildings through CC&Rs, and M-AQ-1f: Transportation Demand Management).

As with the Proposed Project, the District Energy System Variant would be consistent with the 2010 Clean Air Plan, and impacts would be less than significant with implementation of the Transportation Demand Management Plan (TDM) (see “TDM Plan,” in Section 4.E, Transportation and Circulation, pp. 4.E.46-4.E.47), which includes strategies to discourage the use of automobiles and encourage transit and other modes of transportation. Other mitigation measures of the Proposed Project, identified under Impact AQ-1 that would also be applicable to the District Energy System Variant in regards to consistency with the 2010 Clean Air Plan are as follows:

- Mitigation Measure M-AQ-1a : Construction Emissions Minimization Plan (requiring low NOx emitting construction vehicles; requiring Tier 4, low-emissions construction vehicles),
- Mitigation Measure M-AQ-1b: Diesel Backup Generator Specifications (reducing NOx associated with operation)
- Mitigation Measure M-AQ-1f: Transportation Demand Management
- Mitigation Measure M-AQ-1g: Additional Mobile Source Control Measures (preferential parking and/or charging stations for fuel-efficient vehicles and a neighborhood electric vehicle program), and
- Mitigation Measure M-AQ-1h: Emissions Offset of Operational Emissions (implement replacement or repair of high-emitting vehicles).

Thus, as with the Proposed Project, the implementation of the TDM strategies and mitigation measures would ensure the project includes relevant transportation control measures specified in the Clean Air Plan (see Impact AQ-4). The TDM Plan and mitigation measures would be applicable to the District Energy System Variant ensuring that implementation of the District Energy System Variant would also be less-than significant with mitigation.

As with the Proposed Project, the impacts of the District Energy System Variant in terms of its potential to create objectionable odors that would affect a substantial number of people (see Impact AQ-5) would be less than significant.

Based on the above, project-level and cumulative air quality impacts under the District Energy System Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.G, Air Quality). The impacts under the District Energy System Variant could be greater during construction phases due to an increase in construction truck trips, but slightly less during operations due to the efficiencies the District Energy System Variant offers. Implementation of the District Energy System Variant would not result in new or more severe

impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **GREENHOUSE GAS EMISSIONS**

A variety of controls are in place to ensure that development in San Francisco would not impair the State's ability to meet Statewide GHG reduction targets outlined in AB 32, nor impact the City's ability to meet San Francisco's local GHG reduction targets. Projects that are consistent with San Francisco's GHG Reduction Strategy would not contribute significantly to global climate change. Similar to the Proposed Project, the District Energy System Variant would be required to comply with these regulations and requirements that reduce GHG emissions (see Table 4.H.2: Regulations Applicable to the Proposed Project, in Section 4.H, Greenhouse Gas Emissions, starting on p. 4.H.13). Since the District Energy System Variant would comply with GHG reduction measures required in various City ordinances and would be consistent with all the regulations applicable to the Proposed Project, it would comply with San Francisco's Greenhouse Gas Reduction Strategy. Therefore, as with the Proposed Project, the District Energy System Variant would have a less than cumulatively considerable contribution to significant cumulative GHG impacts.

Implementation of the District Energy System Variant would result in an incremental increase in construction truck trips over that for the Proposed Project due to construction of the District Energy System plant and materials delivery, i.e., equipment and associated piping system. Thus construction activities under this variant that would result in GHG emissions would be slightly greater than those for the Proposed Project.

The District Energy System Variant would not alter the GHG emissions associated with operation of the Proposed Project because this variant would not change the two land use scenarios defined for the Proposed Project. As with the Proposed Project, this variant would introduce a mixed-use development in an area that is served by public transit, and would include Class I and Class II bicycle parking spaces, energy efficiency features beyond Title 24 requirements, low-impact stormwater management design, water-efficient landscaping, water-conserving interior design, convenient recycling and composting, street trees, and other features consistent with San Francisco's ordinances and requirements. Similar to the Proposed Project, development would be consistent with the Sustainable Communities Strategy by including residential and commercial uses in a designated Priority Development Area per Plan Bay Area, furthering the region's goals for reducing GHG emissions. Implementation of local GHG reduction requirements would substantially reduce a project's GHG emissions. In addition, under the District Energy System Variant energy usage would be more efficient than under the Proposed Project, and, as a result, GHG emissions with implementation of this variant may not be as great as that for the Proposed Project. Furthermore, as described in Section 4.H, Greenhouse Gas Emission, implementation of

air quality mitigation measures would also have the added benefit of further reducing GHG emissions from the Proposed Project. Mitigation Measures M-AQ-1a through M-AQ-1h, shown in Section 4.G, Air Quality, on pp. 4.G.42-4.G.50, 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; encouragement of the use of transit and non-motorized modes of transportation; and emission offsets. These mitigation measures would also be applicable to the District Energy System Variant and would further reduce this variant's less-than-significant GHG emissions.

Based on the above, GHG impacts under the District Energy System Variant would be similar to those identified under the Proposed Project (see Section 4.H, Greenhouse Gas Emissions). Implementation of the District Energy System Variant would not result in new or substantially more severe impacts and would not change the analysis or conclusions in that section.

## **UTILITIES AND SERVICE SYSTEMS**

The District Energy System Variant would not include any changes to the Maximum Residential Scenario or Maximum Commercial Scenario defined for the Proposed Project. The variant would not change any utility infrastructure networks in the Proposed Project. Construction techniques would be the same as for the Proposed Project. The variant would include the same new infrastructure for the distribution of potable water, emergency firefighting water, and recycled water as well as for the conveyance of wastewater and stormwater, including the new 20<sup>th</sup> Street pump station. The same three wastewater and stormwater management options (combined sewer system, separate systems, and hybrid system) are under consideration for this variant as for the Proposed Project.

### **Water Supply**

Cooling tower makeup water volume would be approximately 13,700 to 16,500 gallons per day, or 0.014 to 0.16 million gallons per day (mgd), or 5 to 6 million gallons per year. This would be an increase in water demand of about 2.7 to 3.2 percent compared to the water demand for the Maximum Residential Scenario or 3.1 to 3.8 percent for the Maximum Commercial Scenario, if all potable water were used, as presented in Section 4.K, Utilities and Service Systems, in Table 4.K.4: Average Daily Water Demands at Full Build-out (p. 4.K.32). Assuming compliance with the City's Non-potable Water Ordinance, less potable water would be used by the Proposed Project. Under these conditions, the cooling tower makeup water would be a 3.6 to 4.3 percent increase in the demand for potable water compared to the demand from the Maximum Residential Scenario and 4.7 to 5.7 percent for the Maximum Commercial Scenario.



If non-potable, recycled water were used in the cooling water system, the variant would not affect the demand for potable water; however, as explained in Section 4.K under “Water Demands Once Off-Site Recycled Water from the City Is Available,” the City plans to provide recycled water by the year 2029. Therefore, while this scenario would eliminate the demand for potable water in the District Energy System Variant, the analysis does not assume that recycled water would be available.

In summary, the variant would result in a small increase in daily water demand for the Proposed Project. This increase would not be large enough to trigger the need for new or expanded water supply resources or entitlements because it would not make up a substantial percentage of the overall citywide demand for potable water, which the SFPUC determined (in conjunction with 2010 Urban Water Management Plan information on available water supplies) as sufficient.<sup>7</sup> The 2013 Water Availability Study determined that the SFPUC can meet the future demands of its retail customers.<sup>8</sup> Therefore the variant would not change the analysis or conclusions with regard to water supply presented for the Proposed Project in Section 4.K, Hydrology and Water Quality.

### **Wastewater Facilities**

While the District Energy System Variant would require regular amounts of makeup water, the losses in volume would be mainly due to evaporation. Relatively small amounts would be discharged to the wastewater collection and treatment system as cooling tower blowdown (water that is removed from the system to reduce mineral buildup that can damage the system by adding fresh water). The District Energy System facilities would be cross-connected with the sewer system and would continuously discharge small volumes of wastewater to the sewer system depending on the cooling demands of the project site (i.e., would not be not large infrequent discharge volumes). Only about 25 percent of the supply water would be discharged to the sewer system as the rest would evaporate in the heat rejection process. Therefore, implementation of the Proposed Project with this variant would likely not cause exceedances of wastewater treatment requirements because of the relatively benign quality of the water purged from the District Energy System facilities or result in the need to construct new collection or treatment facilities because the volumes would not be substantial. Thus, implementation of this variant would have less than significant impacts, as for the Proposed Project.

### **Solid Waste**

The District Energy System Variant would not change the amount of solid waste generated. Therefore the impact and conclusions in Section 4.K under Impacts UT-6 and UT-7, determining

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<sup>7</sup> SFPUC, *2010 Urban Water Management Plan for the City and County of San Francisco*, June 2011.

<sup>8</sup> SFPUC, *2013 Water Availability Study for the City and County of San Francisco*, May 2013.

that the Proposed Project would have less-than-significant impacts related to solid waste disposal, would not change with implementation of this variant.

Based on the above, project-level and cumulative utilities and service systems impacts under the District Energy System Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.K, Utilities and Service Systems). Implementation of the District Energy System Variant would not result in new or more severe impacts, would not change the analysis or conclusions in that section, and no new mitigation measures would be required.

## **HYDROLOGY**

Hydrology and water quality impacts under the District Energy System Variant would be similar to the environmental impacts addressed in Section 4.O, Hydrology and Water Quality, for the Proposed Project. The proposed central plant would be constructed on the project site and within the same stormwater drainage basin as the Proposed Project. Because the central plant would likely be located within the basement level of a building on Parcel C1, and the cooling tower would be located adjacent to the central plant on property expected to contain structures, the central plant and cooling tower would not result in a substantial change in the amount of impervious surfaces or stormwater drainage.

Installation of a district heating and cooling system would require additional water usage, primarily for cooling water makeup. Cooling tower blowdown typically contains elevated levels of total dissolved solids, and may contain elevated levels of metals and other constituents. Cooling tower blowdown, and other plant process water would likely be discharged to the combined sewer system or the sanitary sewer system, depending on the option selected (see Section 4.O, Hydrology and Water Quality), and then treated at and discharged from the Southeast Water Pollution Control Plant (SEWPCP). This would not substantially alter water quality, as the discharge would be required to comply with City regulatory requirements in San Francisco Public Works Code Article 4.1, Wastewater Discharges to the Combined Sewer System (see Regulatory Framework, in Section 4.O, particularly p. 4.O.38).

The use of a cooling tower could result in increases in the volume of discharge to the wastewater system that could contribute to exceedances in the capacity of the existing 20<sup>th</sup> Street pump station discussed in Impact HY-2 in Section 4.O, Hydrology and Water Quality. Construction of a new 20<sup>th</sup> Street pump station would, with implementation of Mitigation Measure M-HY-2a: Design and Construction of Proposed Pump Station for Options 1 and 3, or Mitigation Measure M-HY-2b: Design and Construction of Proposed Pump Station for Option 2, presented on pp. 4.O.60-4.O.61, accommodate increased wastewater flows and would result in less-than-significant impacts. The District Energy System Variant would not use or affect groundwater or

affect the existing drainage patterns, and would have less-than-significant impacts, as for the Proposed Project.

Based on the above, project-level and cumulative hydrology and water quality impacts under the District Energy System Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.O, Hydrology and Water Quality). Implementation of the District Energy System Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

### **HAZARDS AND HAZARDOUS MATERIALS**

Hazards and hazardous materials impacts under the District Energy System Variant would be the same as, or similar to, the environmental impacts addressed in Section 4.P, Hazards and Hazardous Materials, for the Proposed Project. Although the district energy system infrastructure would be developed as part of Parcel C1 its operation could introduce hazards between future pedestrians, motorists, and site users (e.g., adjacencies at the basement level or cooling tower), the design of the district energy system facility and the siting of associated equipment (e.g., cooling tower) would adhere to the San Francisco and Port Building Codes and other applicable regulations that would ensure that exposure to hazards would be minimized. For example, the district energy system plant would be separated from the parking portion of the basement level and the cooling tower would be appropriately screened and sited to minimize potential risks related to operational hazards. Therefore, the project-level and cumulative hazards and hazardous materials impacts resulting from construction and operation of the District Energy System Variant would be similar to those under the Proposed Project (see Section 4.P, Hazards and Hazardous Materials). Implementation of the District Energy System Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

### **MINERAL AND ENERGY RESOURCES**

Environmental impacts associated with mineral and energy resources under the District Energy System Variant would be the same as or similar to the environmental impacts addressed in Section 4.Q, Mineral and Energy Resources, for the Proposed Project. The variant would have no impact on mineral resources, consistent with the Proposed Project as addressed in Impact ME-1. Demolition, excavation, site grading, and construction activities under the District Energy System Variant would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. As described above, under this variant the construction of the District Energy System plant would occur as part of the second phase of development. Construction of the associated pipeline system would occur according to the phase associated

with the adjacent Parcels and would occur in concert with other infrastructure improvements. Implementation of the District Energy System Variant would result in a slight increase in construction truck trips due to the need to transport materials for the installation of the new facility and associated pipeline system. Due to the increased fuel usage for the additional construction truck trips, construction-related energy impacts under this variant would be slightly greater than those for the Proposed Project. However, as with the Proposed Project, energy impacts under this variant would be less than significant because construction-related activities would be temporary.

Implementation of the variant would be expected to result in less natural gas use than the Proposed Project, as shown in Table 4.Q.1, because the central plant and cooling tower would be more efficient, and would burn less natural gas than individual boilers in buildings under the Proposed Project.

Therefore, the project-level and cumulative mineral and energy resources impacts resulting from the construction and operation of the District Energy System Variant would have no impact or be less than significant, as described in Section 4.Q, Mineral and Energy Resources, under Impacts ME-1, ME-2, and ME-3 for the Proposed Project, and would not change the analysis or conclusions in that section.

## **C. WASTEWATER TREATMENT AND REUSE SYSTEM VARIANT**

### ***Introduction***

Under the WTRS Variant, wastewater in the form of blackwater (wastewater from toilets, urinals, dishwashers, kitchen sinks, and utility sinks containing feces, urine, other bodily wastes, or other biological wastes), graywater and rainwater would be collected from all newly constructed buildings, treated, and reused for toilet and urinal flushing, irrigation, and cooling towers. The WTRS Variant is an infrastructure-related variant. This variant assumes that all newly constructed buildings would be served by the one central WTRS plant, and that a separate collection and distribution pipeline system would be installed in tandem with other infrastructure improvements. The WTRS Variant is different from the Proposed Project because it would include a centralized facility (as opposed to the capture of graywater and rain water and its reuse within the individual building). Unlike the Proposed Project, this variant also assumes blackwater would be collected and treated along with the graywater and rainwater that would be captured under the Proposed Project.

The WTRS Variant does not include any changes to the land use programs for the Maximum Residential Scenario or Maximum Commercial Scenario defined for the Proposed Project. The

land use programs and project site improvements would be implemented in a similar fashion as that for the Proposed Project.

### ***Description***

The WTRS Variant would consist of a single treatment facility to be located either in an existing building (Building 108) or in a new building (approximately 20,000 square feet and 35 feet tall) on an asphalt lot located on the BAE Systems Ship Repair site north of 20<sup>th</sup> Street opposite the proposed commercial office uses on Parcels A and B.<sup>9</sup> See Figure 2.5: Proposed SUD Land Use Program, in Chapter 2, Project Description, p. 2.22, for the location of these parcels in relation to the BAE Systems Ship Repair site. If the WTRS plant is located within Building 108, Building 108 would be structurally and seismically upgraded to ensure that the building would continue operation in the event of an emergency, and security improvements would be made to restrict public access to the WTRS plant. A driveway would be constructed adjacent to Building 108 or the new building on the asphalt lot to allow access for maintenance and servicing and all building improvements would be reviewed and approved by the Port. The WTRS plant would use electrical power and water treatment chemicals and would be fully enclosed within Building 108 or the new building on the asphalt lot. Odor control units would be installed and exhaust gases would likely be vented at the top of the building housing the WTRS plant. All the interior and exterior improvements to Building 108 would meet the *Secretary of Interior's Standards*. The associated collection and distribution piping would be emplaced under the proposed public rights-of-way and would connect all new buildings that would be located on Parcels A, B, C1, C2, D, E1 through E4, F, G, H1, H2, HDY1, HDY2, PKN, and PKS and rehabilitated Building 2 to the WTRS plant.<sup>10</sup> The piping system would be connected to the City's combined sewer system to discharge wastewater flows in excess of non-potable (water reuse) demand in accordance with Article 4.1 of the San Francisco Public Works Code, as supplemented by Order No. 158170. Discharges to the combined sewer system would also occur when the treatment and distribution system is shut down for maintenance and permit-required testing; and in case of emergency shut down.

The WTRS plant would include primary treatment (removal of large debris), secondary treatment (biological breakdown of organic materials), and advanced treatment (various methods of eliminating pathogens and certain other pollutants). The WTRS plant would include at least the following components or functions: feed tank (wastewater input), trash trap, bioreactor, and a disinfection and storage tank. Collected wastewater would be treated to meet the water quality

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<sup>9</sup> AECOM, Memorandum to Forest City, re: "District-scale Wastewater Treatment and Reuse Project Summary," September 27, 2016, Figure 1 on p. 4.

<sup>10</sup> Ibid.

criteria as set forth by the San Francisco Department of Public Health (DPH) Director's Rules and Regulations for the Operation of Alternate Water Source System.<sup>11</sup> The distribution system for treated non-potable water for reuse would have backflow protection and meet other requirements to prevent contamination of the potable water supply. Chemicals required for the treatment process would be stored at the treatment plant and would include membrane cleaning acid (if membranes are used for advanced treatment) and an oxidizing disinfection agent such as sodium hypochlorite.

The project sponsors or an independent operator would construct and operate the WTRS plant. The SFPUC would review and approve the alternate water sources and non-potable applications while DPH would review and approve the engineering report for the WTRS plant and issue the permit for operation. DBI would issue the building and plumbing permits for the WTRS plant. The WTRS plant would also be permitted and regulated by the BAAQMD because it would include stationary equipment that emits to the atmosphere. The WTRS plant would be required to have a Hazardous Materials Business Plan that identifies incident response procedures in accordance with Article 21 of the San Francisco Health Code. Emergency response procedures for addressing chemical spills or gas releases related to the operation of the WTRS plant as well as procedures in the case of earthquakes, fire, and other natural disasters would be delineated in these plans.

The proposed WTRS plant would be constructed as part of the first phase of development, would be sized for a total capacity of up to approximately 150,000 gallons per day, would have a footprint of approximately 10,000 to 20,000 square feet, and would be designed to allow expansion of the treatment capacity as new project phases are completed. When expressed in the same unit of measure as that done for the Proposed Project, the capacity of the proposed WTRS plant would be 0.15 mgd. The estimated demand for non-potable water for the Maximum Residential Scenario and Maximum Commercial Scenario of the Proposed Project would be approximately 0.13 mgd and 0.15 mgd, respectively.<sup>12</sup> Actual water reuse quantities would be determined in part by San Francisco Health Code Section 12.C.4, regarding Water Budget Documentation and related requirements. The sewer demand estimates for the Proposed Project already assume compliance with the City's Non-potable Water Ordinance. Therefore, this variant would result in the same potable water and sewer demands as would the Proposed Project.

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<sup>11</sup> California Office of Administrative Law, California Code of Regulations. Available online at <https://govt.westlaw.com/calregs/Index?transitionType=Default&contextData=%28sc.Default%29>. Accessed July 11, 2016.

<sup>12</sup> BKF, Memorandum to Forest City, re: Pier 70 – Water Demand Memorandum, April 28, 2016, p. 4, and Tables 3 and 4 on pp. 7-8.

The WTRS plant would receive wastewater from buildings on Parcels A, B, C1, C2, D, E1 through E4, F, G, H1, H2, HDY1, HDY2, PKN, and PKS and rehabilitated Building 2, and send treated water back to the same group of buildings. Wastewater flows in excess of the non-potable water demand would be discharged into the combined sewer system in accordance with Article 4.1 of the San Francisco Public Works Code, as supplemented by Order No. 158170. In case the WTRS plant needs to be shut down and recycled water becomes temporarily unavailable, the City's recycled water supply would be used as backup supply when it becomes available.<sup>13</sup> In the meantime, a supplemental potable water supply with appropriate cross connection prevention measures (e.g., air gap) to the non-potable water system would be available.

Truck delivery of chemicals for the WTRS Variant would be once every two to six weeks. Excess liquid waste from the WTRS plant would be discharged into the combined sewer system or the new separate wastewater system, depending on which of the Proposed Project's wastewater and stormwater management options is implemented. Alternatively, the liquid waste could be hauled away by truck for processing at a location that is permitted to accept the liquid waste. Trash trap waste would be double-bagged and disposed at a landfill. Approximately two truck trips per week have been assumed for off-site hauling of trash trap waste and liquid waste, and for chemical storehouse replenishment.<sup>14</sup>

## **PROPOSED CONSTRUCTION PHASING**

Under the WTRS Variant, demolition, excavation, site grading, and construction activities would be conducted according to the construction phases described in Chapter 2, Project Description, and would be substantially the same as under the Proposed Project. Under both the Maximum Residential Scenario and Commercial Scenario the WTRS plant would be constructed as part of Phase 1 (see Table 2.5: Project Construction and Rehabilitation Phasing for the Maximum Residential Scenario, and Table 2.6: Project Construction and Rehabilitation Phasing for the Maximum Commercial Scenario, in Chapter 2, Project Description). Under either scenario, the associated piping system would be constructed according to the construction phases detailed in Tables 2.5 and 2.6 (i.e., with infrastructure improvements and the development of adjacent parcels). The WTRS Variant would include demolition of the same buildings as well as construction of the same shoreline improvements and transportation, utility, and open space networks as the Proposed Project. The WTRS Variant would not change any aspect of the Proposed Project related to demolition, excavation, and site grading; the construction of shoreline

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<sup>13</sup> The San Francisco Eastside Recycled Water Project is in the planning stages, with construction not expected to be completed until the end of 2029. Information available online at [http://sfwater.org/bids/projectDetail.aspx?prj\\_id=311](http://sfwater.org/bids/projectDetail.aspx?prj_id=311). Accessed December 6, 2016.

<sup>14</sup> AECOM, Memorandum to Forest City, re: District-scale Wastewater Treatment and Reuse Project Summary, September 27, 2016, p. 3.

improvements; geotechnical stabilization; the construction of the transportation, open space, and utility infrastructure networks; or other improvements such as the construction of the new 20<sup>th</sup> Street pump station. Proposed development is expected to involve up to five phases (Phases 1 through 5) and is conceptual; however construction is expected to begin in 2018 and would be phased over an approximately 11-year period, concluding in 2029. As with the Proposed Project, the multi-phased approach to project site development would result in project site occupancy and operations overlapping with, and being affected by, future construction phases.

### ***Proposed Land Use Programs***

The WTRS Variant does not include any changes to the land use programs for the Maximum Residential Scenario or Maximum Commercial Scenario defined for the Proposed Project or the Proposed Project's wastewater and stormwater management options. The WTRS Variant would not result in any changes to the proposed open space network, traffic and circulation plan, new infrastructure and utility plans, geotechnical stabilization plan, or the shoreline improvement plan. See Chapter 2, Project Description, Table 2.2: Proposed Pier 70 Special Use District – Primary Uses by Parcel and Rehabilitated Building, p. 2.26. The land use program and project site improvements would be implemented in a similar fashion as that for the Proposed Project according to the timeline defined in the phasing.

### ***Impact Evaluation***

#### **APPROACH TO ANALYSIS**

The WTRS Variant would not involve any change to the mix of land uses, the space allocation of uses, or the residential unit count under the Maximum Residential Scenario and Maximum Commercial Scenario of the Proposed Project. Likewise, this variant would not involve any change to the locations, configurations, building envelopes, or excavation depths for the programmed development under the two scenarios analyzed for the Proposed Project. Therefore, physical environmental effects under this variant would be substantially the same as those identified for the Proposed Project for the following environmental topics: Population and Housing, Wind and Shadow, Recreation, Public Services, Biological Resources, Geology and Soils, and Agricultural and Forest Resources. All mitigation and improvement measures described for these topics under the Proposed Project would be applicable to this variant.

The following environmental topics are analyzed for this variant: Land Use and Land Use Planning, Cultural Resources (Archaeological Resources and Historic Architectural Resources), Transportation and Circulation, Noise and Vibration, Air Quality, Greenhouse Gas Emissions, Utilities and Service Systems, Hydrology and Water Quality, Hazards and Hazardous Materials, and Mineral and Energy Resources.



## **LAND USE AND LAND USE PLANNING**

As noted above the WTRS Variant would not include any changes to the Maximum Residential or Maximum Commercial Scenarios defined for the Proposed Project. Under this variant the new 10,000-square-foot wastewater treatment collection facility may be developed in Building 108 or in a new building on the asphalt lot on the BAE Systems Ship Repair Site north of Parcels A and B and new 20<sup>th</sup> Street. The WTRS plant would be constructed as part of the first phase of development. As an infrastructure use, the WTRS plant within Building 108 or the new building on the adjacent asphalt lot would not be substantially different from other infrastructure features and related uses on the project site or its vicinity. The proposed WTRS plant would be consistent with the existing zoning on the BAE Systems Ship Repair site which is M-2 (Heavy Industrial) as well as the 65-X Height and Bulk District. The proposed use of Building 108 or the new building on the adjacent asphalt lot would be compatible with the adjacent land uses and would have less-than-significant land use impacts related to conflicts with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Based on the above, project-level and cumulative land use and land use planning impacts under the WTRS Variant would be similar to those under the Proposed Project (see Section 4.B, Land Use and Land Use Planning). Implementation of the WTRS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **CULTURAL RESOURCES**

### **Archeological Resources, Human Remains, and Tribal Cultural Resources**

Under WTRS Variant there would be minimal excavation related to the rehabilitation of Building 108 or the construction of a new building on the adjacent lot because there would be no expansion to an existing basement level (if extant) at Building 108 or a new basement level in a new building on the adjacent asphalt lot. There would be no change to the depth and extent of excavation on the 28-Acre Site or the Illinois Parcels. As described in Section 4.D, Cultural Resources, the project site has been extensively altered over time resulting in low potential for prehistoric archeological resources. As further described, historic archeological resources such as subsurface architectural features related to the UIW Historic District, landscape features evidencing historic land uses, infrastructure features related to the former Union Iron Works/Bethlehem Steel industrial complex and associated industrial activities, refuse features related to Irish Hill habitation and industrial occupancies, and industrial features related to the various industries that have occupied the project site may be present on the project site. Although the potential for the discovery of historic archeological resources exists, the site history suggests that the rapid large-scale expansion of this area in response to the needs of World Wars I and II

constituted a series of actions more likely to have damaged or destroyed valuable archaeological resources, than to have left behind any new significant resources. However, as discussed under Impacts CR-1 and CR-2, the potential for encountering subsurface archeological resources, including human remains, cannot be conclusively ruled out, especially in those circumstances where excavation and grading would occur in previously undisturbed soils. Thus, as with the Proposed Project, with implementation of Mitigation Measures M-CR-1a: Archaeological Testing, Monitoring, Data Recovery and Reporting and M-CR-1b: Interpretation on pp. 4.D.25-4.D.29, the WTRS Variant would not cause a substantial adverse change to the significance of an archaeological resource, if present within the project site or the BAE Systems Ship Repair site.

The impacts of the WTRS Variant on tribal cultural resources would be substantially the same as those for the Proposed Project, i.e., less than significant (see Impact CR-3).

### **Historic Architectural Resources**

The project site contains 11 contributors to the UIW Historic District (see Table 4.D.1: Contributing and Non-Contributing Buildings and Features on the Project Site, p. 4.D.35). The WTRS Variant would not include any changes to the Maximum Residential or Maximum Commercial Scenarios defined for the Proposed Project; or the plans for the preservation/rehabilitation/relocation of Buildings 2, 12, and 21; the demolition of Buildings 11, 15, 16, 19, 25, 32, and 66; the removal of the northern spur of the remnant of Irish Hill for construction of the new 21<sup>st</sup> Street; the transportation and open space network; the utility infrastructure; the public realm improvements; or the design principles identified in the *Pier 70 SUD Design for Development*.

Under the WTRS Variant, Building 108, which is identified as a contributor to the UIW District, may be rehabilitated and made structurally and seismically sound and venting for the odor control units would be introduced to the exterior of the structure, likely at the rooftop. These potential exterior and interior improvements to Building 108 would meet the *Secretary of Interior's Standards*. Therefore, the WTRS Variant would not alter the character-defining features of Building 108 or the relationship of Building 108 with other resources and the UIW Historic District as a whole and would not create a new impact. If the WTRS plant were to be constructed in a new building on the asphalt lot located adjacent to Building 108 the new building would be designed to be compatible with the UIW Historic District. As is the case for new infill construction under the Proposed Project (see Impact CR-11), Mitigation Measure M-CR-11: Performance Criteria and Review Process for New Construction (see pp. 4.D.103-4.D.106), would also be applicable to the WTRS Variant if the wastewater collection and treatment facility would be constructed as part of a new building rather than incorporated into rehabilitated Building 108. In addition, the land use program for the Proposed Project and the variant would be the same; thus, as with the Proposed Project, the impacts associated with the

demolition of historic resources, the rehabilitation of existing resources, and the construction of new buildings within and adjacent to the existing UIW Historic District and the remnant of Irish Hill would be less than significant or unchanged from that of the Proposed Project.

Therefore, the project-level and cumulative historic architectural resource impacts under the WTRS Variant would be the same as, or similar to, those discussed for the Proposed Project under Impacts CR-4 through CR-12 and Impact C-CR-2 in Section 4.D, Cultural Resources,. As with the Proposed Project, with implementation of Improvement Measures I-CR-4a: Documentation and I-CR-4b: Public Interpretation, on pp. 4.D.91-4.D.92, the less-than-significant impact related to the proposed demolition of seven contributing features would be reduced. Furthermore, as with the Proposed Project, with implementation of Mitigation Measures M-CR-5: Preparation of Historic Resource Evaluation Reports, Review, and Performance Criteria and M-CR-11: Performance Criteria and Review Process for New Construction, on pp. 4.D.93-4.D.94 and pp. 4.D.103-4.D.106, the project-level and cumulative impacts of the relocation and rehabilitation of contributing features as well as the compatibility of new structures would be reduced so as not to cause a substantial adverse change to historic architectural resources.

Based on the above, project-level and cumulative cultural resource impacts under the WTRS Variant would be similar to those identified under the Proposed Project (see Section 4.D, Cultural Resources). Implementation of the WTRS Variant would not change the analysis or conclusions in that section, would not result in new or more severe impacts, and no new mitigation measures would be required.

## **TRANSPORTATION AND CIRCULATION**

Demolition, excavation, site grading, and construction activities under the WTRS Variant would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project (see Figures 2.26 and 2.27 and Tables 2.5 and 2.6 on pp. 2.80-2.85). Under this variant the construction of the WTRS plant (in Building 108 on the BAE Systems Ship Repair site, or in a new building on the adjacent asphalt lot) would occur during the first phase of development. The associated collection and distribution pipeline system would be placed within the public right-of-way at the same time as the construction of the proposed transportation and utility infrastructure networks and the adjacent Parcels. As a result there would be additional construction truck traffic trips associated with the construction of the WTRS plant and the installation of the WTRS infrastructure. As discussed under Impact TR-1 for the Proposed Project, the same construction truck traffic routes (e.g., Third Street and either 25<sup>th</sup> or Mariposa streets to access I-280 to travel south; Third Street and either Second or Fifth streets to reach the Bay Bridge and the East Bay; and Third Street, Howard Street, and Van Ness Avenue (U.S. 101) to travel to North Bay destinations) would be used under this variant. Implementation of the WTRS Variant would result in a slight increase in construction truck trips due to the need to

transport materials for the construction of the WTRS plant as well as associated equipment and pipelines; however, this increase would make up a relatively small portion of the construction truck traffic generated during each construction phase. Thus, construction-related impacts under this variant would be slightly greater than those for the Proposed Project, but would not result in an increase in severity of impacts or new significant impacts. The temporary (and less than significant) impacts associated with construction-related traffic of the Proposed Project are described under Impact TR-1, and that impact analysis would be applicable to this variant for the same reasons as stated for the Proposed Project (i.e., construction-related transportation impacts would be temporary and potential conflicts between construction activities and pedestrians, bicyclists, transit vehicles and auto vehicles, and between construction activities and nearby businesses and residents would be managed through City ordinances, regulations, and BMPs).

The WTRS Variant would not result in substantial increases in operational VMT because it does not alter the development scenarios for the Proposed Project. With respect to operational impacts, operational-related changes under this variant would be limited to the additional truck trips associated with the replenishment of the chemical storehouse at the WTRS plant (in Building 108 [or the new building on the adjacent asphalt lot]) as well as off-site hauling of trash and liquid waste (if not discharged to the sewer system). These combined activities would generate approximately two truck trips a week. The additional truck trips (and associated VMT increase) would be small in relation to the overall numbers of vehicle trips (and VMT) generated by the Proposed Project. Any increase in service truck trips (and associated VMT) would be small and would not substantially affect total vehicle miles traveled as a result of operations of the Proposed Project. Delivery of supplies for operation and maintenance of the WTRS plant would be similar to loading activities described for the Proposed Project, and would not substantially increase the demand for loading facilities. Emergency access would not be affected by the development of a WTRS plant in Building 108 on the BAE Systems Ship Repair site (or adjacent asphalt lot) because this infrastructure would not introduce any changes to the transportation network that would affect emergency access. The truck trips associated with the maintenance and operation of the WTRS plant under this variant (e.g., centralized activities as opposed to being dispersed throughout the project site) would change the circulation patterns on the project site but the change would be minimal. There would be minimal or no change to transit, pedestrian, or bicycle effects from the WTRS Variant. Thus, due to the minor increase in truck trips, operational-related project-level and cumulative transportation and circulation impacts under the WTRS Variant would be slightly greater than those discussed for the Proposed Project (see Section 4.E, Transportation and Circulation). Therefore, all operational-related mitigation measures identified under Section 4.E, Transportation and Circulation for the Proposed Project would also be applicable to the WTRS Variant (i.e., Mitigation Measure M-TR-5: Monitor and increase capacity on the 48 Quintara/24<sup>th</sup> Street bus routes as needed [pp. 4.E.91-4.E.93] under Impact TR-5; Mitigation Measure M-TR-10: Improve pedestrian facilities on Illinois Street

adjacent to and leading to the project site [pp. 4.E.99-4.E.100] under Impact TR-10; Mitigation Measure M-TR-12a: The Project's Transportation Coordinator should coordinate with building tenants and delivery services to minimize deliveries during a.m. and p.m. peak periods [p. 4.E.105] under Impact TR-12; Mitigation Measure M-TR-12b: Monitor loading activity and convert general purpose on-street parking spaces to commercial loading spaces, as needed [p. 4.E.105] under Impact TR-12; Mitigation Measure M-C-TR-4a: Increase capacity on the 48 Quintara/24<sup>th</sup> Street bus route under the Maximum Residential Scenario [p. 4.E.118] under Impact C-TR-4; and Mitigation Measure M-C-TR-4b: Increase capacity on the 22 Fillmore bus route under the Maximum Commercial Scenario [p. 4.E.118] under Impact C-TR-4). There would be no modifications to the below-grade parking program under this variant thus there would be no changes to the overall parking program under the Proposed Project.

Based on the above, project-level and cumulative transportation and circulation impacts under the WTRS Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.E, Transportation and Circulation). Implementation of the WTRS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **NOISE AND VIBRATION**

Under the WTRS Variant construction-related noise and vibration would be generated by the same construction equipment as that for the Proposed Project and no additional or specialized equipment not previously identified in the Proposed Project would be required. Under this variant demolition, excavation, site grading, and construction activities would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. As discussed under Impact NO-2 in Section 4.F, Noise and Vibration, the multi-phased approach to project site development would result in the exposure of sensitive receptors (e.g., residential land uses on the Illinois Parcels – Parcels HDY1, HDY2, PKN, and PKS) to noise from active construction phase(s) and operational noise associated with the occupancy and operation of previously completed phases. Further, construction-related traffic increases from all new development on the project site would use the same roads (20<sup>th</sup>, new 21<sup>st</sup>, and new 22<sup>nd</sup> streets) to access the project site from Illinois Street, exposing the same sensitive receptors (those facing these streets on Parcels PKN, PKS, HDY, C2, F, and G) to construction traffic noise increases (over the 11 years of construction).

The noise associated with the construction of the proposed WTRS plant on the BAE Systems Ship Repair site (in Building 108 or in a new building on the adjacent asphalt lot) and placement of the associated pipeline system within the public rights-of-way along with all the other transportation and utility infrastructure would be similar to, or slightly greater than, that for the Proposed Project. Due to the minor increase in the number of construction truck trips under this

variant (i.e., materials delivery for the WTRS equipment and associated piping) the noise from construction truck traffic would be expected to be incrementally greater than that which would be generated under the Proposed Project. Thus, construction-related noise impacts under the WTRS Variant would be slightly greater than those for the Proposed Project, but the impacts would not be new impacts or substantially more severe than those identified under the Proposed Project. Therefore, as with the Proposed Project, the construction-related noise mitigation measures identified for the Proposed Project would be applicable to the WTRS Variant. As with the Proposed Project, construction-related truck trips generated during the estimated 11-year construction duration would be managed as part of the traffic control plan that would be developed for each of the construction phases, as delineated under Impact TR-1 in Section 4.E, Transportation and Circulation. The traffic control plans (that would be developed under Improvement Measure I-TR-A: Construction Management Plan) assume that construction vehicles would use Third Street and 25<sup>th</sup> Street or Mariposa Street to access I-280 to travel south; Third Street and either Second or Fifth streets to reach the Bay Bridge and the East Bay; and Third Street, Howard Street, and Van Ness Avenue (U.S. 101) to travel to North Bay destinations. As with the Proposed Project, and depending on the location of construction materials being transported to the project site and the location of the construction activities on the project site as well as the location of disposal sites for excavated soil and demolition debris, construction truck traffic under this variant would likely use the same streets.

Other than a slight increase in construction truck trips (for the rehabilitation of Building 108, construction of the WTRS plant, and installation of the associated piping) all other aspects of construction of the Proposed Project would be the same under the WTRS Variant. As described under Impacts NO-1 and NO-2 for the Proposed Project (see Section 4.F, Noise and Vibration), implementation of Mitigation Measure M-NO-1: Construction Noise Control Plan and Mitigation Measure M-NO-2: Noise Control Measures During Pile Driving would reduce the temporary or periodic increases in ambient noise levels, but these measures would not necessarily reduce these noise increases to below the significance threshold. Under the Proposed Project, the finding of a significant and unavoidable construction-related impact for the Proposed Project would be associated with the potential for pile driving for building foundations. Since the WTRS plant would not be expected to need a pile foundation, the WTRS Variant would not contribute to this significant noise impact. However, construction-related noise impacts under the WTRS Variant would be the same as the Proposed Project – significant and unavoidable. Therefore, as with the Proposed Project, the construction-related noise mitigation measures identified for the Proposed Project would be applicable to the WTRS Variant.

The proposed WTRS plant would be developed on the BAE Systems Ship Repair site north of Parcels A and B and may be located in either Building 108 or an adjoining asphalt lot. Noise generated by the operation of the WTRS plant would be contained within a structure, which

would limit the potential for exposure of Proposed Project residents to operational noise from this facility. Additionally, the potential for noise impacts on these residents would be further limited by proposed location of the WTRS plant, which would be at least 400 feet from the closest future residential receptors and the presence of intervening commercial buildings (Parcels A and B) between the WTRS plant and these residents. Given these factors, it is expected that compliance with noise limits specified in Section 2909 of the Police Code would be sufficient to ensure that operation of the proposed WTRS plant would not result in any new significant noise impacts beyond those identified for the Proposed Project. However, under this variant, unlike the Proposed Project, truck trips associated with the replenishment of chemical storehouses at the proposed WTRS facility and off-site hauling of trash and liquid waste (about two truck trips per week) would incrementally add to traffic noise increases estimated for the Proposed Project, some of which were determined to be significant and unavoidable with mitigation and cumulatively considerable. However, this minor increase would not measurably change estimated average daily traffic noise increases. Therefore, operational-related, project-level, and cumulative noise impacts under the WTRS Variant would be the same as those discussed for the Proposed Project, i.e., significant and unavoidable with mitigation (see Section 4.F, Noise and Vibration). Thus, all operational-related mitigation measures identified for the Proposed Project would also be applicable to the WTRS Variant.

Based on the above, project-level and cumulative noise and vibration impacts under the WTRS Variant would be similar to those identified under the Proposed Project (see Section 4.F, Noise and Vibration). Implementation of the WTRS Variant would not change the analysis or conclusions in that section, would not result in new or more severe impacts, and no new mitigation measures would be required.

## **AIR QUALITY**

Under the WTRS Variant construction-related air quality emissions would be generated by the same construction equipment as that for the Proposed Project. Under this variant demolition, excavation, site grading, and construction activities would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. As with the Proposed Project, the multi-phased approach to project site development would result in simultaneous emissions from active construction phase(s) and the occupancy and operation of previously completed Phases (e.g., the residential land uses on the Illinois Parcels – Parcels HDY1, HDY2, PKN, and PKS). Due to the construction of the WTRS facility on the BAE Systems Ship Repair site and the installation of the associated collection and distribution pipeline systems, the number of construction vendor trips under this variant would be slightly greater than those under the Proposed Project. Under the WTRS Variant the construction truck traffic component of emissions of criteria air pollutants during the various construction phases would be slightly

greater than that which would be generated under the Proposed Project. Thus, construction-related air quality impacts under the WTRS Variant would be slightly greater than those for the Proposed Project. Therefore, Mitigation Measure M-AQ-1a: Construction Emissions Minimization, pp. 4.G.42-4.G.44, identified for the Proposed Project, would be applicable to the WTRS Variant.

Under this variant, unlike the Proposed Project, a WTRS plant would be constructed. The WTRS Plant would be located north of the project site on the BAE Systems Ship Repair site within rehabilitated Building 108 or a new building on the adjacent asphalt lot. The WTRS plant would require permits from the BAAQMD that would place conditions on emissions and annual operations. Emissions of criteria air pollutants generated by the operation of the proposed WTRS Variant would add to emissions estimated for the Proposed Project. Further, under this variant, unlike the Proposed Project, truck trips associated with the replenishment of chemical storehouses at the WTRS plant and off-site hauling of trash and liquid waste (about two truck trips per week) would be new mobile sources of emissions. The slight increase in truck trips (less than one trip per day) would not result in a meaningful increase in emissions over the Proposed Project under either development scenario, both of which would generate over 30,000 trips per day. Based on the designed throughput of the WTRS plant, its operational stationary source emissions would be less than 0.02 percent of the existing operational criteria pollutant emissions of the City's existing Southeast Treatment Plant. This would equate (based on BAAQMD's most recent inventory published in 2014) to approximately 0.01 tons per year ROG and 0.01 tons per year of NOx. Thus, while the operation of the WTRS plant and the incremental increase in truck traffic under the WTRS Variant would result in a slight increase in operational emissions of criteria air pollutants over that estimated for the Proposed Project this increase would not change the estimate of daily or annual emissions reported in Section 4.G, Air Quality. The WTRS plant would likely be developed as part of Phase 1 and become operational upon completion and occupancy of the first residential buildings under Phases 2 through 5. Its operational capacity would increase with each new building that would be developed and connected to the associated pipeline systems. As shown in Tables 4.G.7 and 4.G.8, pp. 4.G.38-4.G.39 and 4.G.54-4.G.55, for the Proposed Project, construction-related emissions during the concurrent construction of Phases 1 and 2 would be less than significant. However, the combined emissions from Phase 3 construction and the occupancy and operation of Phases 1 and 2; from Phase 4 construction and the occupancy and operation of Phases 1 through 3; and from Phase 5 construction and the occupancy and operation of Phases 1 through 4 would exceed the significance thresholds for certain criteria air pollutants. Thus, as with the Proposed Project, under this variant the combined criteria pollutant emissions generated during a construction phase and the occupancy and operation of a previously completed phase(s) would result in significant air quality impacts.



Operational-related air quality impacts under the WTRS Variant would not be meaningfully greater than the impacts of the Proposed Project, i.e., significant and unavoidable (see Section 4.G, Air Quality). Thus, as with the Proposed Project, operational-related mitigation measures identified for the Proposed Project would also be applicable to the WTRS Variant.

Under the WTRS Variant, as with the Proposed Project, TAC emissions from construction and occupancy and operation would expose sensitive receptors to substantial pollutant concentrations of TACs and result in a localized health risk. Under this variant the exposure of sensitive receptors to substantial pollutant concentrations of TACs would be slightly increased as a result of emissions from additional construction truck trips, the operation of the WTRS plant, and the truck trips needed to service and maintain the WTRS plant, and, as with the Proposed Project, would result in a significant impact. TAC emissions from operation of the WTRS plant would likely primarily be the result of backup diesel generators, which would require a permit from the BAAQMD. Other TAC emissions associated with water treatment facilities are primarily the result of cogeneration engines, sludge handling processing, anaerobic digesters, waste gas flares, and boilers, none of which would be part of the WTRS Variant, as currently proposed. The BAAQMD will not issue a permit for a source that exceeds a health risk of 10 in one million. The maximum cumulative increased cancer risk for the Proposed Project would be 86 in one million, as indicated in Section 4.G, Air Quality, Table 4.G.16. Conservatively, assuming a worst case increase of 10 in one million associated with addition of backup generator operations for the WTRS, the maximum cumulative increased cancer risk for the Proposed Project would be 96 in one million, which would still be below the 100 in one million threshold and therefore still a less-than-significant impact.

As discussed under Impact AQ-3, the exposure of on-site sensitive receptors to increased TAC emissions from construction equipment as well as stationary sources (e.g., diesel back-up generators) would be reduced to a less-than-significant level with implementation of Mitigation Measures M-AQ-1a: Construction Emissions Minimization and M-AQ-1b: Diesel Backup Generator Specifications. These mitigation measures would be applicable to the WTRS Variant ensuring that implementation of the WTRS Variant would also be less-than significant with mitigation.

As with the Proposed Project, the WTRS Variant would be consistent with the 2010 Clean Air Plan, and impacts would be less than significant with implementation of the TDM Plan (see “TDM Plan,” in Section 4.E, Transportation and Circulation, pp. 4.E.46-4.E.47), which includes strategies to discourage the use of automobiles and encourage transit and other modes of transportation. Other mitigation measures of the Proposed Project, identified under Impact AQ-1, that would also be applicable to the WTRS Variant in regards to consistency with the 2010 Clean Air Plan are as follows:

- Mitigation Measure M-AQ-1a : Construction Emissions Minimization Plan (requiring low NOx emitting construction vehicles; requiring Tier 4, low-emissions construction vehicles),
- Mitigation Measure M-AQ-1b: Diesel Backup Generator Specifications (reducing NOx associated with operation)
- Mitigation Measure M-AQ-1f: Transportation Demand Management,
- Mitigation Measure M-AQ-1g: Additional Mobile Source Control Measures (preferential parking and/or charging stations for fuel-efficient vehicles and a neighborhood electric vehicle program), and
- Mitigation Measure M-AQ-1h: Emissions Offset of Operational Emissions (implement replacement or repair of high-emitting vehicles).

Thus, as with the Proposed Project, the implementation of the TDM strategies and mitigation measures would ensure the project includes relevant transportation control measures specified in the Clean Air Plan (see Impact AQ-4). The TDM Plan and mitigation measures would be applicable to the WTRS Variant ensuring that implementation of the WTRS Variant would also be less-than significant with mitigation.

As noted above, odor control units would be installed at the WTRS plant with venting to occur at the rooftop of rehabilitated Building 108 or a new standalone structure on the BAE Systems Ship Repair site north of Parcels A and B. Since the WTRS plant would use electrical power and chemicals there would be no methane-related odors. Furthermore, the handling of hazardous materials such as the chemicals used for the various treatment and processing steps including liquid waste would be conducted in accordance with the required Hazardous Materials Business Plan as well as Regulation 7 of the BAAQMD which places general limitations on odorous substances and specific emission limitations on certain odorous compounds; thus, ensuring that potential odors associated with this activity would be reduced to the maximum extent possible. Thus, as with the Proposed Project, the impacts of the WTRS Variant related to the creation of objectionable odors that would affect a substantial number of people would be less than significant (see Impact AQ-5).

Based on the above, project-level and cumulative air quality impacts under the WTRS Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.G, Air Quality). Implementation of the WTRS Variant would not result in new or substantially more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **GREENHOUSE GAS EMISSIONS**

A variety of controls are in place to ensure that development in San Francisco would not impair the State's ability to meet Statewide GHG reduction targets outlined in AB 32, nor impact the

City's ability to meet San Francisco's local GHG reduction targets. Projects that are consistent with San Francisco's GHG Reduction Strategy would not contribute significantly to global climate change. Similar to the Proposed Project, the WTRS Variant would be required to comply with these regulations and requirements that reduce GHG emissions (see Table 4.H.2: Regulations Applicable to the Proposed Project, in Section 4.H, Greenhouse Gas Emissions, pp. 4.H.13-4.H.28). Since the WTRS Variant would comply with GHG reduction measures required in various City ordinances and would be consistent with all the regulations applicable to the Proposed Project, it would comply with San Francisco's Greenhouse Gas Reduction Strategy. Therefore, as with the Proposed Project, the WTRS Variant would have a less than cumulatively considerable contribution to significant cumulative GHG impacts.

Implementation of the WTRS Variant would result in an incremental increase in construction truck trips over that for the Proposed Project due to construction of the WTRS plant and materials delivery, i.e., equipment and associated piping system. Thus construction activities under this variant that would result in GHG emissions would be slightly greater than those for the Proposed Project.

As with the Proposed Project, this variant would introduce a mixed-use development in an area that is served by public transit, and would include Class I and Class II bicycle parking spaces, energy efficiency features beyond Title 24 requirements, low-impact stormwater management design, water-efficient landscaping, water-conserving interior design, convenient recycling and composting, street trees, and other features consistent with San Francisco's requirements. However, operation of WTRS plant would slightly alter GHG emissions from the Proposed Project because the plant would use energy in the treatment process to meet non-potable water requirements, however increases in emissions would be minimal since the amount of wastewater treatment processing at the off-site Eastside Recycled Water Program would be reduced under the WTRS variant due to the proposed on-site wastewater treatment.

Similar to the Proposed Project, development would be consistent with the Sustainable Communities Strategy by including residential and commercial uses in a designated Priority Development Area per Plan Bay Area, furthering the region's goals for reducing GHG emissions. Implementation of local GHG reduction requirements would substantially reduce a project's GHG emissions. Furthermore, as described in Section 4.H, Greenhouse Gas Emission, implementation of air quality mitigation measures would also have the added benefit of further reducing GHG emissions from the Proposed Project. Mitigation Measures M-AQ-1a through M-AQ-1h, shown in Section 4.G, Air Quality, 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; encouragement of the use of transit and non-motorized modes of transportation; and emission

offsets. These mitigation measures would also be applicable to the WTRS Variant and would further reduce this variant's less-than-significant GHG emissions.

Based on the above, GHG impacts under the WTRS Variant would be similar to those identified under the Proposed Project (see Section 4.H, Greenhouse Gas Emissions). Implementation of the WTRS Variant would not result in new or substantially more severe impacts and would not change the analysis or conclusions in that section.

## UTILITIES AND SERVICE SYSTEMS

As described above, under this variant the WTRS plant would be constructed as part of the first construction phase and would be located either within the rehabilitated Building 108 or an adjacent asphalt lot on the BAE Systems Ship Repair site north of Parcels A and B. The associated wastewater collection pipelines and treated water distribution pipelines would be constructed to connect each of the buildings served to the WTRS plant.

As discussed under Impact UT-1, the total average potable water demand for the Proposed Project at full build out would be 0.51 mgd under the Maximum Residential Scenario and 0.44 mgd under the Maximum Commercial Scenario. The SFPUC confirmed that this amount of potable water is available from its regional water system in its adopted Water Supply Assessment for the Proposed Project.<sup>15</sup> The WTRS Variant includes the same development scenarios as the Proposed Project (Maximum Residential Scenario and Maximum Commercial Scenario), therefore the potable water demand under this variant would be the same as the Proposed Project.

Under the Proposed Project, the use of potable water would be offset by using non-potable water derived from graywater and rainwater for non-potable purposes such as toilet and urinal flushing, landscape irrigation, and cooling tower make-up water in accordance with the City's Non-potable Water Ordinance; the total non-potable demand would be 0.13 mgd for the Maximum Residential Scenario and the total non-potable demand for the Maximum Commercial Scenario would be 0.15 mgd. The WTRS Variant would utilize blackwater, in addition to graywater and rainwater, to help meet this demand in compliance with the City's Non-potable Water Ordinance. However, this variant would not result in further reductions in the potable water demand relative to the Proposed Project because all of the non-potable demands can already be met by graywater and rainwater. Therefore, impacts related to having a sufficient water supply for the WTRS Variant would be the same as those for the Proposed Project (see Impact UT-1). Similarly, impacts related to the need for new or expanded water distribution systems would be the same as for the

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<sup>15</sup> City and County of San Francisco Public Utilities Commission, *Resolution No. 16-0095 approving May 24, 2016 Water Supply Assessment for the Pier 70 Project*, May 24, 2016.

Proposed Project (see Impact UT-2). Thus, both impacts would be less than significant for this variant.

Under the Proposed Project at full build out, the maximum average dry-weather wastewater flows would be 0.48 mgd under the Maximum Residential Use Scenario and 0.41 mgd under the Maximum Commercial Use Scenario.<sup>16</sup> The sewer demand would be the same for the WTRS Variant because the estimates for the Proposed Project assume compliance with the City's Non-potable Water Ordinance. As discussed in Impact UT-3, this sewer demand is well within the capacity of the SEWPCP, and impacts related to exceeding the wastewater treatment requirements of the SEWPCP would be less than significant for this variant as it would be for the Proposed Project. Under the WTRS Variant, as with the Proposed Project, dry-weather sewer demand for both the Maximum Residential Scenario and Maximum Commercial Scenario is greater than the remaining dry weather capacity of the 20<sup>th</sup> Street pump station by approximately 0.3 mgd and 0.1 mgd, respectively. To address this, the WTRS Variant includes construction of the same wastewater conveyance system improvements as the Proposed Project, including the new 20<sup>th</sup> Street pump station and associated pipelines, as well as the relocated 54-inch detention line connecting the 20<sup>th</sup> and 22<sup>nd</sup> streets CSD outfall structures. Therefore, impacts related to requiring new or expanded wastewater treatment facilities and impacts related to resulting in a determination by the SFPUC that it has inadequate capacity to serve the Proposed Project's estimated demand in addition to its existing commitments would be less than significant. These impacts would be the same as those of the Proposed Project (see Impact UT-4).

The WTRS Variant would include construction of the same buildings and result in the same small increase in impervious surfaces as the Proposed Project. Therefore, the volume and rate of stormwater runoff from the project site under this variant would be the same as would occur under the Proposed Project. The WTRS Variant would be subject to the same regulatory requirements as under the Proposed Project and would not require the construction of new or expanded stormwater facilities. The impact would be less than significant regardless of the wastewater and stormwater management option implemented (see Impact UT-5).

As discussed above, operation of the WTRS plant would result in the capture/screening out of liquid waste and other debris. Although liquid waste could be discharged to the combined sewer system or separate wastewater system, depending on which option is implemented by the project sponsors, this assessment assumes that all solid waste (e.g., trash) and liquid waste that would be generated as a result of the three-step wastewater treatment processes would require off-site disposal at an appropriate landfill or transport to a treatment facility. Since the two scenarios defined for the Proposed Project would not change under the WTRS Variant the volume of solid

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<sup>16</sup> BKF, *Pier 70 Sewer Demand Memorandum*, March 29, 2016.

waste (either trash, recyclables, or compostables) generated on the project site under this variant would be the same as that from the Proposed Project. Including the addition of trash screened out at the WTRS plant the overall amount of solid waste that would need to be transported to appropriate landfills would be similar to that under the Proposed Project. Unlike the Proposed Project wherein liquid waste would be collected and transported via the combined sewer system to the SEWPCP, under the WTRS Variant liquid waste would be captured and retained on site for a period of time (thus reducing their yield) prior to transport for final treatment. Therefore, solid waste-related impacts of the WTRS Variant would be substantially the same as those for the Proposed Project, and, similar to the Proposed Project, the WTRS Variant would comply with all local, State, and Federal statutes related to solid waste (see discussion under Impacts UT-6 and UT-7).

Based on the above, project-level and cumulative utilities and service systems impacts under the WTRS Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.K, Utilities and Service Systems). Implementation of the WTRS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **HYDROLOGY AND WATER QUALITY**

The WTRS Variant includes construction of new wastewater collection lines and treated water distribution lines between the WTRS plant and the buildings served. The development footprint of the variant is identical to the Proposed Project (except for the new WTRS plant on a location north of Parcels A and B on the BAE Systems Ship Repair site). The WTRS plant would be located in a building that would have a footprint of no more than 10,000 square feet resulting in an incremental increase in the total volume of excavated soils. Installation of the additional pipelines would occur within the public right-of-way in tandem with the development of adjacent parcels and associated transportation and utility infrastructure improvements. Thus, construction of the WTRS plant and associated pipeline systems would not substantially affect the amount of excavation required for project construction or the amount of construction-related dewatering required.

As with the Proposed Project, impacts related to a violation of water quality standards or waste discharge requirements and degradation of water quality during construction under this variant would be less than significant with compliance with applicable regulatory requirements. Regulatory requirements for on-land construction activities include the SWRCB Construction General Stormwater Permit and the associated Stormwater Pollution Prevention Plan as well as Article 4.2 of the San Francisco Public Works Code and the associated Construction Site Runoff Permit, depending on the wastewater and stormwater management implemented (see discussion under Impact HY-1).

As described under Impact HY-1, groundwater discharges during construction-related excavation dewatering could be discharged to the combined sewer system in accordance with the requirements of Article 4.1 of the Public Works Code, as supplemented by Order No. 158170. Alternatively, the groundwater could be discharged directly to San Francisco Bay in accordance with a NPDES permit from the Regional Water Quality Control Board, such as the Groundwater General Permit, the VOC and Fuel General Permit, or an individual NPDES permit. As with the Proposed Project, the WTRS Variant would adhere to the construction-related permit requirements for groundwater discharges described in Impact HY-1, thus ensuring that construction-related water quality impacts would be less than significant.

As for the Proposed Project, implementation of Article 4.2 of the San Francisco Public Works Code Section 147 and the Stormwater Control Plans required under the City's Stormwater Management Requirements and Design Guidelines would ensure that construction under the WTRS Variant would not cause alterations or diversions of existing streams or water courses, or changes to existing drainage patterns such that substantial erosion, siltation, or flooding would occur on or off site (see Impact HY-4). As with the Proposed Project, impacts under the WTRS Variant related to alteration of existing drainage patterns would be less than significant.

The WTRS Variant would not change the amount of stormwater runoff that would drain from the project site. Therefore, operational impacts related to stormwater discharge would be less than significant, as for the Proposed Project, and the same regulatory requirements would apply (see Impact HY-2).

This variant would reduce the amount of wastewater discharged to the sewer system by using some of the treated water for landscape irrigation. Therefore, it would have the same or reduced water quality effects from CSDs as those for the Proposed Project. However, the reduction in wastewater volume is not expected to be sufficient to avoid exceeding the capacity of the 20<sup>th</sup> Street pump station at least during wet weather. As with the Proposed Project, without sufficient pumping capacity the new pump station could cause the frequency of CSDs from the 20<sup>th</sup> Street sub-basin and/or downstream basins to increase beyond the long-term average of 10 CSD events per year, in violation of the Bayside NPDES permit. Therefore, as with the Proposed Project, a significant water quality impact would also occur under the WTRS Variant. Thus, implementation of mitigation measures identified for the Proposed Project would also be applicable to the WTRS Variant. Mitigation Measures M-HY-2a or M-HY-2b on pp. 4.O.60-4.O.61 would be required to ensure that wastewater and stormwater discharges would not exceed the long-term average of 10 CSD events specified in the Bayside NPDES permit for the 20<sup>th</sup> Street sub-basin and downstream basins of the combined sewer system.

Unlike the Proposed Project, the WTRS Variant would use blackwater as an alternate water supply to comply with the City's Non-potable Water Ordinance. As mentioned previously, blackwater includes biological wastes from toilets, urinals, dishwashers, kitchen sinks, and utility sinks that contain feces, urine, and other bodily wastes. Blackwater contains higher amounts of microorganisms than graywater, which is typically derived from bath tubs, showers, bathroom sinks, and clothes washing machines. Higher amounts of microorganisms could result in greater health risks to site users. However, in accordance with the City's Non-potable Water Ordinance, the project sponsors or private operator would be required to treat the blackwater to comply with the non-potable water quality criteria specified by the DPH and conduct monitoring to demonstrate compliance with the specified non-potable water quality criteria. For blackwater reuse systems, the treated water must meet specified water quality limits for total coliform, biochemical oxygen demand, and total suspended solids, in addition to meeting other water quality criteria applicable to graywater reuse systems. Further, the blackwater system operators must hold a Level II, or higher, certification as a wastewater treatment plant operator as specified in the DPH Rules and Regulations. Although there is a higher potential for health risks due to use of blackwater as an alternate water supply under the WTRS Variant, impacts related to reuse of blackwater would be less than significant with implementation of the requirements of the City's Non-potable Water Ordinance, similar to the Proposed Project.

As with the Proposed Project, the WTRS Variant would not result in depletion of groundwater resources because, other than the pumping of groundwater during construction dewatering, this variant would not involve the use or extraction of groundwater. Rather, as with the Proposed Project, potable water would be provided by the SFPUC, and non-potable water would be obtained from various sources in accordance with the City's Non-potable Water Ordinance. Further, this variant would not interfere with groundwater recharge because the change in impervious surfaces would be the same as would occur under the Proposed Project (see Impact HY-3). Therefore, under this variant, as with the Proposed Project, impacts related to depletion of groundwater resources and interference with groundwater recharge would be less than significant.

Under the WTRS Variant there would be no change to the Proposed Project's shoreline improvements; thus, impacts related to existing flooding, future flooding, and tsunami inundation would be less than significant, as for the Proposed Project.

Based on the above, project-level and cumulative hydrology and water quality impacts under the WTRS Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.O, Hydrology and Water Quality). Implementation of the WTRS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.



## **HAZARDS AND HAZARDOUS MATERIALS**

The WTRS Variant includes construction of the new WTRS plant and the new wastewater collection lines and treated water distribution lines within the public right-of-way between the WTRS plant and the buildings served. Construction of the WTRS plant and the additional pipelines would not substantially change the amount of soil excavation required for project construction, and would only introduce one new area of excavation (the location of the WTRS plant on the BAE Systems Ship Repair site). The WTRS Variant would include essentially the same amount of construction as would occur under the Proposed Project. Therefore, the use of hazardous materials during construction and the volume of groundwater dewatering would be the same as for the Proposed Project and would be less than significant with implementation of an erosion and sediment control plan in accordance with Article 4.2 of the San Francisco Public Works Code or a SWPPP in accordance with the SWRCB Construction General Stormwater Permit (see Impact HZ-1).

In addition to the same use of hazardous materials and generation of hazardous waste during operation as the Proposed Project, this variant would require the use of sodium hydroxide, a membrane cleaning acid (if membranes are used in the advance treatment system), and an oxidizing agent such as sodium hypochlorite. As for the Proposed Project, the use, storage and management of hazardous materials and wastes in accordance with Articles 21 and 22 of the San Francisco Health Code would ensure that impacts related to the routine use, transport, and disposal of hazardous materials during operation would be less than significant. Impacts under the WTRS Variant would be substantially the same as those discussed for the Proposed Project (see discussions under Impact HZ-1).

The WTRS Variant would not change demolition and renovation activities on the 28-Acre Site; however, it may include the rehabilitation of Building 108. However, the same regulatory requirements related to demolition and disposal of hazardous building materials would apply, and the impact would be less than significant (see Impact HZ-2). As with the Proposed Project, significant impacts related to the removal of PCB-containing electrical transformers would occur under this variant. Thus, the mitigation measures identified for the Proposed Project (Mitigation Measures M-HZ-2a: Conduct Transformer Survey and Remove PCB Transformers, M-HZ-2b: Conduct Sampling and Cleanup if Stained Building Materials Are Observed, and Mitigation Measure M-HZ-2c: Conduct Soil Sampling if Stained Soil is Observed) would be applicable to this variant and would ensure that impacts would remain less than significant.

The WTRS Variant would involve excavation of a similar quantity of soil as the Proposed Project. Thus, under this variant, impacts related to exposure of the public and workers to chemicals in the soil and groundwater during construction would be less than significant with implementation of mitigation measures identified for the Proposed Project (see discussion under

Impacts HZ-3 and HZ-4). The WTRS Variant would also have the same potential to damage existing groundwater monitoring wells and generate naturally-occurring asbestos dust during construction. Thus, implementation of mitigation measures identified for the Proposed Project would ensure that the impacts associated with exposure to these emissions would remain less than significant under this variant. Further, diesel particulate matter emissions from construction would be the same as or similar to the Proposed Project and would continue to be less than significant (see Impact HZ-8).

Impacts related to the potential to interfere with PG&E's remediation of the PG&E responsibility area and exposure to chemicals in the soil within the Hoedown Yard during operation would be substantially the same as those discussed for the Proposed Project because there would be no change to the interface of the 28-Acre Site and adjacent land uses to the south (see discussions under Impact HZ-5 and Impact HZ-7). As for the Proposed Project, these impacts would be less than significant with implementation of Mitigation Measures M-HZ-5: Delay Development on Parcel H2 Until Remediation of the PG&E Responsibility Area is Complete and M-HZ-7: Modify Hoedown Yard Site Mitigation Plan. As for the Proposed Project, the development of residential uses on Parcel H1 would expose future residents to the potential for adverse health effects due to vapor intrusion; however, implementation of Mitigation Measure M-HZ-6: Additional Risk Evaluations and Vapor Control Measures for Residential Land Uses would ensure that impacts to residential users would be less than significant. The mitigation measures identified for the Proposed Project would remain applicable to the WTRS Variant.

Because land uses would be the same under this variant, including the development and future use of the Irish Hill Playground, impacts from naturally-occurring asbestos would be the same as under the Proposed Project. Thus, with implementation of the mitigation measures identified for the Proposed Project the impacts under this variant would be reduced to less-than-significant levels (see discussion under Impact HZ-8).

Based on the above, project-level and cumulative hazards and hazardous materials impacts under the WTRS Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.P, Hazards and Hazardous Material). Implementation of the WTRS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures are required.

## **MINERAL AND ENERGY RESOURCES**

Environmental impacts associated with mineral and energy resources under the WTRS Variant would be the same as or similar to the environmental impacts addressed in Section 4.Q, Mineral and Energy Resources, for the Proposed Project. The variant would have no impact on mineral

resources, consistent with the Proposed Project as addressed in Impact ME-1. Demolition, excavation, site grading, and construction activities under the WTRS Variant would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project (see Figures 2.26 and 2.27 and Tables 2.5 and 2.6, pp. 2.80-2.85). As described above, under this variant the construction of the WTRS plant would occur as part of the first phase of development. Construction of the associated collection and distribution pipeline system would occur according to the phase associated with the adjacent Parcels and would occur in concert with other infrastructure improvements. Implementation of the WTRS Variant would result in a slight increase in construction truck trips due to the need to transport materials for the construction of the new facility and associated pipeline system. Due to the increased fuel usage for the additional construction truck trips, construction-related energy impacts under this variant would be slightly greater than those for the Proposed Project. However, as with the Proposed Project, energy impacts under this variant would be less than significant because construction-related activities would be temporary.

Under the WTRS Variant, unlike the Proposed Project, a WTRS plant may be located either in Building 108 or on an adjacent asphalt lot on the BAE Systems Ship Repair site immediately north of the 28-Acre Site. Under this variant, operational-related changes associated with the WTRS plant would be expected to use the same amount of electricity, natural gas, and transportation fuel as that estimated for the Proposed Project for the reasons discussed further below (see Tables 4.Q.1 and 4.Q.2, pp. 4.Q.15-4.Q.19). Under the WTRS Variant the collection of blackwater (in addition to graywater and rainwater under the Proposed Project), its treatment, and its subsequent distribution for on-site reuse would result in increased energy usage. Under the WTRS Variant, the two truck trips per week needed to replenish the chemical storehouse as well as truck trips for the transport of liquid waste to an appropriate treatment facility and for the transport of debris screened out as part of the wastewater treatment process to a landfill would result in a slight increase in the use of transportation fuel.

As described below, these slight increases in energy usage would be offset by energy savings in other areas. Under the WTRS Variant, unlike the Proposed Project, the inclusion of blackwater to the proposed on-site water capture mix (i.e., graywater and rainwater under the Proposed Project) would result in a slightly greater reduction in wastewater flows emanating from the project site and a commensurate reduction in the energy required to collect and treat that flow prior to discharge. Furthermore, blackwater capture under this variant, unlike the Proposed Project, would increase the amount of non-potable water that would be available to meet future on-site non-potable water demand thus reducing overall potable water demand and the energy required for its collection, treatment, and distribution. Thus, under this variant, the slight increase in energy consumption for operation of the WTRS plant and the truck trips needed to service the WTRS plant would likely be offset by an incremental decrease in the use of energy related to the

energy-intensive systems that collect, treat, and deliver municipal water and wastewater. Additionally, implementation of this variant would result in a reduction in potable water use. Therefore, environmental impacts associated with energy resources under the WTRS Variant would be the same as, or similar to, the environmental impacts addressed in Section 4.Q, Mineral and Energy Resources, for the Proposed Project. Implementation of the WTRS Variant would not require the construction of new, or the expansion of, existing electric or natural gas transmission/distribution facilities (see discussions under Impacts ME-2 and ME-3).

Based on the above, project-level and cumulative mineral and energy impacts under the WTRS Variant would be similar to those identified under the Proposed Project (see Section 4.Q, Mineral and Energy Resources). Implementation of the WTRS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no mitigation measures would be required.

## **D. AUTOMATED WASTE COLLECTION SYSTEM VARIANT**

### ***Introduction***

An AWCS Variant is under consideration by the project sponsors because it has the potential to operate more efficiently and reduce the number of trash collection truck trips and the associated noise. The AWCS Variant is an infrastructure-related variant. It would replace the proposed system of collecting and transporting recyclables, compostables, and trash (i.e., collection trucks that would drive around the project site to pick up solid waste from each individual building) with a central waste collection facility, loading stations for the collection of solid waste, and a subsurface pipeline system for the transport of solid waste from the loading stations to the central waste collection facility. The central waste collection facility would be up to 10,000 square feet and up to 35 feet in height. It would be located outside of the project site on land north of Parcel B on the BAE Systems Ship Repair site (a surface parking lot) and would likely be constructed as part of the first phase of development. The subsurface pipeline system would be constructed at the same time as the proposed transportation and utility infrastructure networks. There would be loading stations in each new and rehabilitated building as well as in the public right-of-way and in the proposed open spaces. Loading stations located within the new and rehabilitated buildings and public areas would connect to the subsurface pipeline system and become operational upon completion of the building and segments of the transportation and utility infrastructure networks.

The AWCS Variant does not include any changes to the land use programs for the Maximum Residential Scenario or Maximum Commercial Scenario defined for the Proposed Project. As a result, the AWCS Variant would not alter the amount of solid waste estimated to be generated by the future residents, workers, and visitors for the Proposed Project. The land use programs and

project site improvements would be implemented in a similar fashion as that for the Proposed Project.

### ***Description***

The AWCS would be designed to accept recyclables, compostables, and trash at separate loading stations in buildings and public areas. These waste streams would then be transported through a subsurface pipeline system to a central waste collection facility. In order to minimize the potential for odors from organic decomposition and other odorous waste, the subsurface pipeline system would be designed to be under negative pressure (i.e., vacuum towards the central waste collection facility) and activated carbon filters would be used to eliminate odors at the system exhaust.

Under the AWCS Variant, residents, workers, and visitors would deposit recyclables, compostables, and trash in designated receptacles both within and outside of buildings. Once deposited, the material would be temporarily stored at the loading point. A sensor would initiate the discharge sequence when the level of solid waste reaches the capacity of the temporary storage space or it would be initiated according to a predetermined schedule so as to minimize the potential for organic material in the system to linger long enough to produce objectionable odors. The pneumatic system with an air stream of up to 60 miles per hour would direct the solid waste through the subsurface pipeline system to the central waste collection facility. Once the recyclables, compostables, and trash reach the central waste collection facility, each type of material would be collected and compacted before being loaded into trucks and hauled to an off-site processing facility. The project sponsors estimate that solid waste collected at this facility would generate one truck trip per day for off-site hauling of solid waste.

The central waste collection facility would be located in the vicinity of the new 20<sup>th</sup> Street pump station on the BAE Systems Ship Repair site north of the proposed commercial office uses on Parcels A and B. The proposed facility would have a footprint of approximately 5,000 square feet and could be developed on a single level or on two levels. The central waste collection facility would house the suction equipment fans and air compressors, air scrubbers, waste separators, compactors, and containers for temporary storage. The air scrubbers would be wet scrubbers designed and operated to remove airborne particulates and exhaust from the facility. Water from the wet scrubbers would be recycled within the scrubbers. When the scrubbers need to be replaced, the water would be filtered and then discharged to the wastewater collection system in accordance with applicable regulatory requirements. No hazardous materials would be used in the operation of the central waste collection facility or associated odor control system. Sound insulation would be provided around the fan and/or collection area to minimize ambient

noise from the facility. The operator of the collection facility could reduce potential fan noise to 85 decibels<sup>17</sup> or less with acoustical treatments on walls and ceilings, and silencers or other noise-dampening methods on the exhaust pipe. Additional noise shielding would be installed as necessary to achieve the compliance standards of the San Francisco Noise Ordinance.

## **PROPOSED CONSTRUCTION PHASING**

Under the AWCS Variant, demolition, excavation, site grading, and construction activities would be conducted according to the construction phases described in Chapter 2, Project Description, and would be substantially the same as under the Proposed Project. Under both the Maximum Residential Scenario and Commercial Scenario the AWCS facility would be constructed as part of Phase 1. Under either scenario, the associated subsurface pipeline system would be constructed according to the construction phases detailed in Chapter 2, Project Description, Tables 2.5 and 2.6 (i.e., with infrastructure improvements and the development of adjacent parcels), pp. 2.80-2.81 and 2.83-2.84. The AWCS Variant would include demolition of the same buildings as well as construction of the same shoreline improvements and transportation, utility, and open space networks. The AWCS Variant would not change any aspect of the Proposed Project related to demolition, excavation, and site grading; the construction of shoreline improvements; geotechnical stabilization; the construction of the transportation, open space, and utility infrastructure networks; or other improvements such as the construction of the new 20<sup>th</sup> Street pump station. Proposed development is expected to involve up to five phases (Phases 1 through 5) and is conceptual; however, construction is expected to begin in 2018 and would be phased over an approximately 11-year period, concluding in 2029. As with the Proposed Project, the multi-phased approach to project site development would result in project site occupancy and operations overlapping with, and being affected by, future construction phases.

### ***Proposed Land Use Programs***

The AWCS Variant does not include any changes to the land use programs for the Maximum Residential Scenario or Maximum Commercial Scenario defined for the Proposed Project. The AWCS Variant does not include any changes to the proposed open space network, traffic and circulation plan, new infrastructure and utility plans, geotechnical stabilization plan, or the shoreline improvement plan described in Chapter 2, Project Description.

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<sup>17</sup> The decibel scale is used to quantify sound intensity.

## ***Impact Evaluation***

### **APPROACH TO ANALYSIS**

The AWCS Variant does not involve any change to the mix of land uses, the space allocation of uses, or the residential unit count under the Maximum Residential Scenario and Maximum Commercial Scenario of the Proposed Project. Likewise, this variant does not involve any change to the locations, configurations, building envelopes, or depth of excavation of the programmed development under the two scenarios analyzed for the Proposed Project. Therefore, physical environmental effects under this variant would be substantially the same as those identified for the Proposed Project for the following environmental topics: Population and Housing, Wind and Shadow, Recreation, Utilities and Service Systems, Public Services, Biological Resources, Geology and Soils, Hazards and Hazardous Materials, and Agricultural and Forest Resources. All mitigation and improvement measures described for these topics under the Proposed Project would be applicable to this variant.

The following environmental topics are analyzed for this variant: Land Use and Land Use Planning, Cultural Resources (Archaeological Resources and Historic Architectural Resources), Transportation and Circulation, Noise and Vibration, Air Quality, Hydrology and Water Quality, and Mineral and Energy Resources.

### **LAND USE AND LAND USE PLANNING**

As noted above the AWCS Variant would not include any changes to the Maximum Residential or Maximum Commercial Scenarios defined for the Proposed Project. Under this variant the new central waste collection facility would be developed in a new building on the asphalt lot on the BAE Systems Ship Repair Site north of Parcels A and B and new 20<sup>th</sup> Street and near the proposed 20<sup>th</sup> Street pump station. The central waste collection facility would be constructed as part of the first phase of development. As an infrastructure use, the central waste collection facility would not be substantially different from other infrastructure features and related uses on the project site or its vicinity. The central waste collection facility would be consistent with the existing zoning on the BAE Systems Ship Repair site which is M-2 (Heavy Industrial) as well as the 65-X Height and Bulk District. The proposed use of the new building near the 20<sup>th</sup> Street pump station on the BAE Systems Ship Repair site would be compatible with the adjacent land uses and would have less-than-significant land use impacts related to conflicts with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Based on the above, project-level and cumulative land use and land use planning impacts under the AWCS Variant would be similar to those under the Proposed Project (see Section 4.B, Land

Use and Land Use Planning). Implementation of the AWCS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **CULTURAL RESOURCES**

### **Archeological Resources, Human Remains, and Tribal Cultural Resources**

Under the AWCS Variant there would be minimal excavation related to the construction of a new building adjacent to the proposed 20<sup>th</sup> Street pump station because the new building would not include a basement level. There would be no change to the depth and extent of excavation on the 28-Acre Site or the Illinois Parcels. As described in Section 4.D, Cultural Resources, the project site has been extensively altered over time resulting in low potential for prehistoric archeological resources. As further described, historic archeological resources such as subsurface architectural features related to the UIW Historic District, landscape features evidencing historic land uses, infrastructure features related to the former Union Iron Works/Bethlehem Steel industrial complex and associated industrial activities, refuse features related to Irish Hill habitation and industrial occupancies, and industrial features related to the various industries that have occupied the project site may be present on the project site. Although the potential for the discovery of historic archeological resources exists, the site history suggests that the rapid large-scale expansion of this area in response to the needs of World Wars I and II constituted a series of actions more likely to have damaged or destroyed valuable archaeological resources, than to have left behind any new significant resources. However, as discussed under Impacts CR-1 and CR-2 for the Proposed Project, the potential for encountering subsurface archeological resources, including human remains, cannot be conclusively ruled out, especially in those circumstances where excavation and grading would occur in previously undisturbed soils. Thus, as with the Proposed Project, with implementation of Mitigation Measures M-CR-1a: Archaeological Testing, Monitoring, Data Recovery and Reporting and M-CR-1b: Interpretation on pp. 4.D.25-4.D.30, the AWCS Variant would not cause a substantial adverse change to the significance of an archaeological resource, if present within the project site or the BAE Systems Ship Repair site.

The impacts of the AWCS Variant on tribal cultural resources would be substantially the same as those for the Proposed Project, i.e., less than significant (see Impact CR-3).

### **Historic Architectural Resources**

The project site contains 11 contributors to the UIW Historic District (see Table 4.D.1: Contributing and Non-Contributing Buildings and Features on the Project Site, p. 4.D.35). The AWCS Variant would not include any changes to the Maximum Residential Scenario or Maximum Commercial Scenario defined for the Proposed Project; or the plans for the



preservation/rehabilitation/relocation of Buildings 2, 12, and 21; the demolition of Buildings 11, 15, 16, 19, 25, 32, and 66; the removal of the northern spur of the remnant of Irish Hill for construction of the new 21<sup>st</sup> Street; the transportation and open space network; the utility infrastructure; the public realm improvements; or the design principles identified in the *Pier 70 SUD Design for Development*.

Under the AWCS Variant, the central waste collection facility would be constructed in a new building on the asphalt lot located adjacent to the new 20<sup>th</sup> Street Pump Station. Conditions described for new infill construction under the Proposed Project (see Impact CR-11), Mitigation Measure M-CR-11: Performance Criteria and Review Process for New Construction (see pp. 4.D.103-106) would also be applicable to the AWCS Variant. Thus, the new building would be designed to be compatible with the UIW Historic District. In addition, the land use program for the Proposed Project and the variant would be the same; thus, as with the Proposed Project, the impacts associated with the demolition of historic resources, the rehabilitation of existing resources, and the construction of new buildings within and adjacent to the existing UIW Historic District and the remnant of Irish Hill would be less than significant or unchanged from that of the Proposed Project.

Therefore, the project-level and cumulative historic architectural resource impacts under the AWCS Variant would be the same as, or similar to, those discussed for the Proposed Project under Impacts CR-4 through CR-12 and Impact C-CR-2 in Section 4.D, Cultural Resources. As with the Proposed Project, with implementation of Improvement Measures I-CR-4a: Documentation and I-CR-4b: Public Interpretation, on pp. 4.D.91-4.D.92, the less-than-significant impact related to the proposed demolition of seven contributing features would be reduced. Furthermore, as with the Proposed Project, with implementation of Mitigation Measures M-CR-5: Preparation of Historic Resource Evaluation Reports, Review, and Performance Criteria and M-CR-11: Performance Criteria and Review Process for New Construction, on pp. 4.D.93-4.D.94 and pp. 4.D.103-4.D.106, the project-level and cumulative impacts of the relocation and rehabilitation of contributing features as well as the compatibility of new structures would be reduced so as not to cause a substantial adverse change to historic architectural resources.

Based on the above, project-level and cumulative cultural resource impacts under the AWCS Variant would be similar to those identified under the Proposed Project (see Section 4.D, Cultural Resources). Implementation of the AWCS Variant would not change the analysis or conclusions in that section, would not result in new or more severe impacts, and no new mitigation measures would be required.

## TRANSPORTATION AND CIRCULATION

Demolition, excavation, site grading, and construction activities under the AWCS Variant would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project (see Figures 2.26 and 2.27 and Tables 2.5 and 2.6, pp. 2.80-2.85). Under this variant the construction of the proposed central waste collection facility would likely occur during the first phase of development. The associated pipeline system would be placed within the public right-of-way at the same time as the construction of the proposed transportation and utility infrastructure networks and adjacent Parcels. As a result there would be additional construction truck traffic trips associated with the construction of the central waste collection facility and the installation of the AWCS infrastructure. As discussed under Impact TR-1 for the Proposed Project, the same construction truck traffic routes (e.g., Third Street and either 25<sup>th</sup> or Mariposa streets to access I-280 to travel south; Third Street and either Second or Fifth streets to reach the Bay Bridge and the East Bay; and Third Street, Howard Street, and Van Ness Avenue (U.S. 101) to travel to North Bay destinations) would be used under this variant. Implementation of the AWCS Variant would result in a slight increase in construction truck trips due to the need to transport materials for the construction of the central waste collection facility as well as associated equipment and the pipeline system; however, this increase would make up a relatively small portion of the construction truck traffic generated during each construction phase. Thus, construction-related impacts under this variant would be slightly greater than those for the Proposed Project, but would not result in an increase in severity of impacts or new significant impacts. The temporary (and less than significant) impacts associated with construction-related traffic of the Proposed Project are described under Impact TR-1, and that impact analysis would be applicable to this variant for the same reasons as stated for the Proposed Project (i.e., construction-related transportation impacts would be temporary and potential conflicts between construction activities and pedestrians, bicyclists, transit vehicles and auto vehicles, and between construction activities and nearby businesses and residents would be managed through City ordinances, regulations, and BMPs).

The AWCS Variant would not result in substantial increases in operational VMT because it does not alter the development Scenarios for the Proposed Project. With respect to operational impacts, operational-related changes under this variant would be limited to a slight decrease in the number of trash collection truck trips to transfer station and recycling facilities in San Francisco for the off-site hauling of solid waste. There would be one trash collection truck trip per day under this variant as compared to the Proposed Project which would have at least two trips per week for each individually serviced residential and commercial building. The reduction would be a function of the more efficient handling of the solid waste streams at the central waste collection facility (e.g., enhanced compaction) as opposed to a reduction in the amount of solid waste generated by future residents, employees and visitors to the project site. In addition to the

slight reduction in the number of trash collection trucks trips under this variant, trucks associated with this activity would not circulate on the project site to visit individual buildings to collect recyclables, compostables, and trash but instead travel to the central waste collection facility to collect these materials. Thus, under this variant internal trash collection truck trips would be consolidated onto 20<sup>th</sup> Street/new 20<sup>th</sup> Street resulting in a slight decrease in truck-related VMT. The truck trip reduction would be small in relation to the overall numbers of vehicle trips generated by the Proposed Project and would not substantially affect total vehicle miles traveled as a result of operations of the Proposed Project. Delivery of supplies for operation and maintenance of the central waste collection facility would be similar to loading activities described for the Proposed Project, and would not substantially increase the demand for loading facilities. Emergency access would not be affected by the central waste collection facility located within a proposed new building north of Parcels A and B on the BAE Systems Ship Repair site because this infrastructure would not introduce any changes to the transportation network that would affect emergency access. The truck trips associated with the maintenance and operation of the central waste collection facility under this variant would change the circulation patterns on the project site (e.g., consolidation of solid waste collection truck trips onto 20<sup>th</sup> Street as opposed to being dispersed throughout the project site), but the change would be minimal. There would be minimal or no change to transit, pedestrian, or bicycle effects from the AWCS Variant. Thus, due to the minor decrease in trash collection truck trips, operational-related project-level and cumulative transportation and circulation impacts under the AWCS Variant would be the same as, or slightly less than, those discussed for the Proposed Project (see Section 4.E, Transportation and Circulation). Therefore, all operational-related mitigation measures identified for the Proposed Project would also be applicable to the AWCS Variant (i.e., Mitigation Measure M-TR-5: Monitor and increase capacity on the 48 Quintara/24<sup>th</sup> Street bus routes as needed [pp. 4.E.91-4.E.93] under Impact TR-5; Mitigation Measure M-TR-10: Improve pedestrian facilities on Illinois Street adjacent to and leading to the project site [pp. 4.E.99-4.E.100] under Impact TR-10; Mitigation Measure M-TR-12a: The Project's Transportation Coordinator should coordinate with building tenants and delivery services to minimize deliveries during a.m. and p.m. peak periods [p. 4.E.105] under Impact TR-12; Mitigation Measure M-TR-12b: Monitor loading activity and convert general purpose on-street parking spaces to commercial loading spaces, as needed [p. 4.E.105] under Impact TR-12; Mitigation Measure M-C-TR-4a: Increase capacity on the 48 Quintara/24<sup>th</sup> Street bus route under the Maximum Residential Scenario [p. 4.E.118] under Impact C-TR-4; and Mitigation Measure M-C-TR-4b: Increase capacity on the 22 Fillmore bus route under the Maximum Commercial Scenario [p. 4.E.118] under Impact C-TR-4). There would be no modifications to the below-grade parking program under this variant thus there would be no changes to the overall parking program under the Proposed Project.

Based on the above, project-level and cumulative transportation and circulation impacts under the AWCS Variant would be similar to, or slightly less than, those identified under the Proposed

Project (see Section 4.E, Transportation and Circulation). Implementation of the AWCS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **NOISE AND VIBRATION**

Under the AWCS Variant construction-related noise and vibration would be generated by the same construction equipment as that for the Proposed Project. Under this variant demolition, excavation, site grading, and construction activities would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. The proposed central waste collection facility would likely be installed during the first phase of development and the associated pipeline system would be emplaced within the public right-of-way at the same time as construction of the proposed transportation and utility infrastructure networks and adjacent parcels. As discussed under Impact NO-2 in Section 4.F, Noise and Vibration, the multi-phased approach to project site development would result in the exposure of sensitive receptors (e.g., the residential land uses on the Illinois Parcels – Parcels HDY1, HDY2, PKN, and PKS) to noise from active construction phase(s) and operational noise associated with the occupancy and operation of previously completed phases. Further, construction-related traffic increases from all new development on the project site would use the same roads (20<sup>th</sup>, new 21<sup>st</sup>, and new 22<sup>nd</sup> streets) to access the project site from Illinois Street, exposing the same sensitive receptors (those facing these streets on Parcels C2, F, G, HDY, PKN, and PKS) to construction traffic noise increases (over the 11 years of construction).

The noise associated with the construction of the proposed central waste collection facility on the BAE Systems Ship Repair site near the proposed 20<sup>th</sup> Street pump station and placement of the associated pipeline system within the public rights-of-way along with all the other transportation and utility infrastructure would be similar to, or slightly greater than, that for the Proposed Project. The minor increase in the number of construction truck trips under this variant would be a result of materials delivery for the AWCS equipment and associated piping. Thus, under this variant the construction-related increases in ambient noise levels during the various construction phases would be expected to be incrementally greater than that which would be generated under the Proposed Project (primarily due to an incremental increase in construction truck traffic) but would remain less than significant with mitigation. Therefore, as with the Proposed Project, the construction-related noise mitigation measures identified for the Proposed Project would be applicable to the AWCS Variant. Under the Proposed Project, the finding of a significant and unavoidable construction-related impact for the Proposed Project would be associated with the potential for pile driving for building foundations. Since the central waste collection facility would not be expected to need a pile foundation, the AWCS Variant would not contribute to this

significant noise impact. However, mitigation measures applicable to the Proposed Project would also be applicable to the AWCS Variant.

The proposed central waste collection facility would be located north of Parcels A and B on the BAE Systems Ship Repair site and noise generated by the operation of the suction equipment fans and air compressors, wet scrubbers, waste separators, and compactors in the central waste collection facility would be contained within the structure. Sound insulation in the form of acoustical treatments on walls and ceilings, and silencers or other noise-dampening methods on the exhaust pipe would be provided around the fan and/or collection area to minimize ambient noise from the facility and meet daytime and nighttime noise ordinance limits at the closest residential receptors. Shielding and enclosing this facility would be sufficient to ensure compliance with the San Francisco Noise Ordinance. In addition, the project sponsors would be required to ensure that all collection systems within individual buildings on the project site would meet San Francisco Noise Ordinance requirements for building mechanical systems.

Under the AWCS Variant, operational noise associated with the trash collection trucks accessing the project site would occur but it would be less than that for the Proposed Project because there would be fewer internal truck trips and fewer truck trips to and from the project site. In addition, operational noise associated with the handling and collection of solid waste at each individual building would not occur under this variant. Under this variant, the consolidation of the internal trash collection truck trips to new 21<sup>st</sup> Street would result in a reduction in ambient noise levels along the project site's other existing and proposed streets, most of which would include future residential land uses with sensitive receptors. Thus, under this variant the reduction in trash collection truck trips and the consolidation of trash collection truck routes to new 21<sup>st</sup> Street would result in minor localized changes to the existing ambient noise levels.

Under the AWCS Variant, compliance with the requirements of the San Francisco Noise Ordinance (as required in Mitigation Measure M-NO-4a: Stationary Equipment Noise Controls on p. 4.F.50) would ensure that incremental noise increases related to the operation of the proposed central waste collection facility would not significantly increase ambient noise levels. When considered together with the incremental noise decreases related to the reduction of internal and off-site trash collection truck trips, changes to ambient noise levels under this variant would likely not be discernible in the context of the existing ambient noise levels. Thus, operational-related project-level impacts under the AWCS Variant would be substantially the same as those discussed for the Proposed Project, and would be significant and unavoidable with mitigation (see Section 4.F, Noise and Vibration). Thus, all operational-related mitigation measures identified for the Proposed Project would also be applicable to the AWCS Variant.

Based on the above, project-level and cumulative noise and vibration impacts under the AWCS Variant would be similar to, or slightly greater than those identified under the Proposed Project

(see Section 4.F, Noise and Vibration). Implementation of the AWCS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **AIR QUALITY**

Under the AWCS Variant construction-related air quality emissions would be generated by the same construction equipment as that for the Proposed Project. Under this variant, demolition, excavation, site grading, and construction activities would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. As with the Proposed Project, the multi-phased approach to project site development would result in simultaneous emissions from active construction phase(s) and the occupancy and operation of previously completed phases (e.g., the residential land uses on the Illinois Parcels – Parcels HDY1, HDY2, PKN, and PKS). The installation of the proposed central waste collection facility would likely occur during the first phase of development and the associated pipeline system would be emplaced within the public right-of-way at the same time as the construction of the proposed transportation and utility infrastructure networks and adjacent parcels. Due to the additional materials needed for the installation of the central waste collection facility and the associated pipeline system, the number of construction truck trips under this variant would be slightly greater than under the Proposed Project. As a result of the construction of the new central waste collection facility and the increase in construction truck traffic, emissions of criteria air pollutants during the various construction phases under this variant would be slightly greater than that which would be generated under the Proposed Project. Thus, construction-related air quality impacts under the AWCS Variant would be slightly greater than those for the Proposed Project. Mitigation Measure M-AQ-1a: Construction Emissions Minimization on pp. 4.G.42-4.G.44, identified for the Proposed Project, would be applicable to the AWCS Variant.

As noted above, the AWCS Variant would not include any changes to the Maximum Residential or Maximum Commercial Scenarios defined for the Proposed Project. However, under this variant, unlike the Proposed Project, a central waste collection facility would be located north of Parcels A and B on the BAE Systems Ship Repair site and would be a new source of criteria air pollutant emissions that would be permitted and regulated by the BAAQMD. Under this variant operation of the central waste collection facility would result in a slight overall decrease in total emissions because it has the potential to operate more efficiently and reduce the number of trash collection truck trips compared to the Proposed Project. Under the AWCS Variant, internal trips would be consolidated onto new 20<sup>th</sup> Street and the overall number of off-site truck trips would be reduced due to more efficient handling of the solid waste streams at the central waste collection facility (i.e., compaction and containerization).

The central waste collection facility would be regulated by the BAAQMD as a miscellaneous source to ensure that PM<sub>10</sub> emissions would be limited by the BAAQMD's Best Available Control Technology for "Solid material storage – Enclosed."<sup>18</sup> Emissions from the exhaust of the central waste collection facility would be expected to be minimal due to the design of the filtering system. Wet scrubbers at the central waste collection facility would be designed and operated to remove airborne particulate matter that could emanate from this facility. Based on typical design and installation of filtration systems, which would be required pursuant to BAAQMD's Best Available Control Technology requirements for miscellaneous sources, PM<sub>10</sub> emissions from exhaust from the central waste collection facility would be modest. An operations plan would implement Best Available Control Technology requirements to limit PM<sub>10</sub> emissions. Thus, given the potential for both emissions increases and decreases associated with the AWCS Variant, overall operational emissions generated under this variant would be similar to those of the Proposed Project.

Under the AWCS Variant, construction of the central waste collection facility could result in a slight increase in emissions of criteria air pollutants over the amount estimated for the Proposed Project and operation of the central waste collection facility could result in a slight decrease in vehicular emissions with the decrease in trash collection truck trips. It is not expected that the operational decrease in truck emissions would balance the increase in construction truck emissions during the multi-phase construction period, and operation of the collection facility could slightly increase emissions. The central waste collection facility would likely be developed as part of the second phase of development and become operational upon completion and occupancy of the first residential buildings under Phases 2 through 5. As shown in Tables 4.G.7 and 4.G.8 on pp. 4.G.38-4.G.39 and 4.G.54-4.G.55 for the Proposed Project, construction-related emissions during the concurrent construction of Phases 1 and 2 would be less than significant. However, the combined emissions from Phase 3 construction and the occupancy and operation of Phases 1 and 2; from Phase 4 construction and the occupancy and operation of Phases 1 through 3; and from Phase 5 construction and the occupancy and operation of Phases 1 through 4 would exceed the significance thresholds for certain criteria air pollutants. As with the Proposed Project, under this variant the combined criteria pollutant emissions generated during a construction phase and the occupancy and operation of a previously completed phase(s) would result in significant air quality impacts. Thus, the operational-related air quality impacts under the AWCS Variant would be the same as, or slightly greater than, the impacts of the Proposed Project and would be significant and unavoidable (see Section 4.G, Air Quality). The

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<sup>18</sup> BAAQMD, Best Available Control Technology Guideline, Section 11, Miscellaneous Sources, Solid Material Storage – Enclosed, Document # 1571.1, 10/18/91. Available online at <http://data.baaqmd.gov/pmt/bactworkbook/default.htm>. Accessed November 1, 2016.

operational-related mitigation measures identified for the Proposed Project would therefore be applicable to the AWCS Variant.

Under the AWCS Variant, as with the Proposed Project, TAC emissions from construction and occupancy and operation would expose sensitive receptors to substantial pollutant concentrations of TACs and result in a localized health risk. Although there would be a decrease in the number of internal and off-site trash collection truck trips needed to transport solid waste off site under this variant, the exposure of sensitive receptors to substantial pollutant concentrations of TACs would be slightly increased as a result of emissions from additional construction truck trips and the operation of the central waste collection facility, and, as with the Proposed Project, would result in a significant impact. As discussed under Impact AQ-3, the exposure of on-site sensitive receptors to increased TAC emissions from construction equipment as well as stationary sources (e.g., diesel back-up generators) would be reduced to a less-than-significant level with implementation of Mitigation Measures M-AQ-1a: Construction Emissions Minimization and M-AQ-1b: Diesel Backup Generator Specifications. These mitigation measures would be applicable to the AWCS Variant ensuring that implementation of the AWCS Variant would also be less-than significant with mitigation.

As with the Proposed Project, the AWCS Variant would be consistent with the 2010 Clean Air Plan, and impacts would be less than significant with implementation of the Transportation Demand Management Plan (TDM) (see “TDM Plan,” in Section 4.E, Transportation and Circulation, pp. 4.E.46-4.E.47), which includes strategies to discourage the use of automobiles and encourage transit and other modes of transportation. Other mitigation measures of the Proposed Project, identified under Impact AQ-1 that would also be applicable to the AWCS Variant in regards to consistency with the 2010 Clean Air Plan are as follows:

- Mitigation Measure M-AQ-1a : Construction Emissions Minimization Plan (requiring low NOx emitting construction vehicles; requiring Tier 4, low-emissions construction vehicles),
- Mitigation Measure M-AQ-1b: Diesel Backup Generator Specifications (reducing NOx associated with operation)
- Mitigation Measure M-AQ-1f: Transportation Demand Management,
- Mitigation Measure M-AQ-1g: Additional Mobile Source Control Measures (preferential parking and/or charging stations for fuel-efficient vehicles and a neighborhood electric vehicle program), and
- Mitigation Measure M-AQ-1h: Emissions Offset of Operational Emissions (implement replacement or repair of high-emitting vehicles).

Thus, as with the Proposed Project, the implementation of the TDM strategies and mitigation measures would ensure the project includes relevant transportation control measures specified in the Clean Air Plan (see Impact AQ-4). The TDM Plan and mitigation measures would be



applicable to the AWCS Variant ensuring that implementation of the AWCS Variant would also be less-than significant with mitigation.

Solid waste collection systems have the potential to generate odors from organic decomposition and other odorous waste. However, as described above, the subsurface pipeline system would be under negative pressure and would receive frequent “flushes” with jets of air. At the central waste collection facility, each of the three waste streams (recyclables, compostables, and trash) would typically enter its designated waste separator and fall into a feed hopper and then a compactor. The material would then be pushed (and compacted) into containers. Full containers would be disconnected from the compactor, sealed, and moved to a staging location. An empty container would be moved into place and connected to the compactor. The containers would be moved using an automated rail-based or other automated positioning system. The staged (full) containers would be stored for loading onto trucks. This typical process would generally keep the material under sealed conditions, reducing the potential for odors in the vicinity of the central waste collection facility. A significant odor impact is not expected under this variant because the AWCS pipeline system would be under negative pressure and the containers receiving the waste would be sealed and transported off site on a daily basis ensuring that organic material in the system would not be expected to linger long enough to produce objectionable odors. Thus, as with the Proposed Project, the impacts of the AWCS Variant related to the creation of objectionable odors that would affect a substantial number of people would be less than significant (see Impact AQ-5).

Based on the above, project-level and cumulative air quality impacts under the AWCS Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.G, Air Quality). Implementation of the AWCS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **GREENHOUSE GAS EMISSIONS**

A variety of controls are in place to ensure that development in San Francisco would not impair the State’s ability to meet Statewide GHG reduction targets outlined in AB 32, nor impact the City’s ability to meet San Francisco’s local GHG reduction targets. Projects that are consistent with San Francisco’s GHG Reduction Strategy would not contribute significantly to global climate change. Similar to the Proposed Project, the AWCS Variant would be required to comply with these regulations and requirements that reduce GHG emissions (see Table 4.H.2: Regulations Applicable to the Proposed Project, in Section 4.H, Greenhouse Gas Emissions, pp. 4.H.13-4.H.28). Since the AWCS Variant would comply with GHG reduction measures required in various City ordinances and would be consistent with all the regulations applicable to the Proposed Project, it would comply with San Francisco’s Greenhouse Gas Reduction Strategy.

Therefore, as with the Proposed Project, the AWCS Variant would have a less than cumulatively considerable contribution to significant cumulative GHG impacts.

Implementation of the AWCS Variant would result in an incremental increase in construction truck trips over that for the Proposed Project due to materials delivery, i.e., equipment and associated piping system. Thus construction activities that would result in GHG emissions would be slightly more intensive than those for the Proposed Project.

The AWCS Variant would not alter the operational GHG emissions increases associated with the Proposed Project because this variant would not change the two land use scenarios defined for the Proposed Project. As with the Proposed Project, this variant would introduce a mixed-use development in an area that is served by public transit, and would include Class I and Class II bicycle parking spaces, energy efficiency features beyond Title 24 requirements, low-impact stormwater management design, water-efficient landscaping, water-conserving interior design, convenient recycling and composting, street trees, and other features consistent with San Francisco's ordinances and requirements. Similar to the Proposed Project, development would be consistent with the Sustainable Communities Strategy by including residential and commercial uses in a designated Priority Development Area per Plan Bay Area, furthering the region's goals for reducing GHG emissions. Implementation of local GHG reduction requirements would substantially reduce a project's GHG emissions. In addition, under the AWCS Variant energy usage would be more efficient than under the Proposed Project, and, as a result, GHG emissions with implementation of this variant may not be as great as that for the Proposed Project. Furthermore, as described in Section 4.H, Greenhouse Gas Emission, implementation of air quality mitigation measures would also have the added benefit of further reducing GHG emissions from the Proposed Project. Mitigation Measures M-AQ-1a through M-AQ-1h, shown in Section 4.G, Air Quality, on 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; encouragement of the use of transit and non-motorized modes of transportation; and emission offsets. These mitigation measures would also be applicable to the AWCS Variant and would further reduce this variant's less-than-significant GHG emissions.

Based on the above, GHG impacts under the AWCS Variant would be similar to those identified under the Proposed Project (see Section 4.H, Greenhouse Gas Emissions). Implementation of the AWCS Variant would not result in new or more severe impacts and would not change the analysis or conclusions in that section.

## **HYDROLOGY AND WATER QUALITY**

Demolition, excavation, site grading, and construction activities under the AWCS Variant would be substantially the same as those for the Proposed Project and would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project (see Figure 2.26: Proposed Phasing Plan – Maximum Residential Scenario, Figure 2.27: Proposed Phasing Plan – Maximum Commercial Scenario, Table 2.5: Project Construction Phasing – Maximum Residential Scenario, and Table 2.6: Project Construction Phasing – Maximum Commercial Scenario, on pp. 2.80-2.85). The AWCS Variant would not change any aspect of the Proposed Project as it relates to demolition, excavation, site grading, and construction activities; the construction of shoreline improvements; geotechnical stabilization; or other site improvements. Thus, ground disturbance under this variant would be substantially the same as that for the Proposed Project (including both scenarios; the combined, separate, or hybrid options for wastewater and stormwater management, and the three options for grading around Building 12) and construction-related hydrology and water quality impacts under this variant would be substantially the same as those for the Proposed Project.

This variant also includes the same development scenarios (Maximum Residential and Maximum Commercial) as the Proposed Project. The only difference between the AWCS Variant and the Proposed Project is that the variant would generate wastewater from the wet scrubbers installed at the AWCS facility. Regardless of the wastewater and stormwater management option implemented, the wastewater from the AWCS Variant would be discharged to the City's combined sewer system. Accordingly, this discharge would be subject to Article 4.1 of the Public Works Code, as supplemented by Order No. 158170. Therefore, water quality impacts as a result of wastewater discharges under the AWCS Variant would be less than significant as they would be for the Proposed Project (see Impact HY-2).

Based on the above, project-level and cumulative hydrology and water quality impacts under the AWCS Variant would be similar to, or slightly greater than, those identified under the Proposed Project (see Section 4.O, Hydrology and Water Quality). Implementation of the AWCS Variant would not result in new or substantially more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

## **MINERAL AND ENERGY RESOURCES**

Environmental impacts associated with mineral and energy resources under the AWCS Variant would be the same as or similar to the environmental impacts addressed in Section 4.Q, Mineral and Energy Resources, for the Proposed Project. The variant would have no impact on mineral resources, consistent with the Proposed Project as addressed in Impact ME-1. Demolition,

excavation, site grading, and construction activities under the AWCS Variant would be conducted according to the same construction phases (Phases 1 through 5) as under the Proposed Project. As described above, under this variant construction of the AWCS facility would occur as part of the first phase of development. Construction of the associated collection system would occur according to the phase associated with the adjacent Parcels and would occur in concert with other infrastructure improvements. Implementation of the AWCS Variant would result in a slight increase in construction truck trips due to the need to transport materials for the construction of the new facility and associated pipeline system. Due to the increased fuel usage for the additional construction truck trips, construction-related energy impacts under this variant would be slightly greater than those for the Proposed Project. However, as with the Proposed Project, energy impacts under this variant would be less than significant because construction-related activities would be temporary.

Under the AWCS Variant, unlike the Proposed Project, a new 10,000-square-foot central waste collection facility would be developed in the vicinity of the new 20<sup>th</sup> Street pump station on the BAE Systems Ship Repair site north of the proposed commercial uses on Parcels A and B. Under this variant, operational-related changes associated with the central waste collection facility would result in the use of electricity and transportation fuel above that estimated for the Proposed Project (see Table 4.Q.1: Estimated Electrical and Natural Gas Demand at Full Build-out for the Maximum Residential Scenario and the Maximum Commercial Scenario, Excluding Solar Photovoltaic and Solar Thermal, and Table 4.Q.2: Approximate Transportation Fuel Demand at Full Build-out for the Maximum Residential Scenario and the Maximum Commercial Scenario, on pp. 4.Q.15 and 4.Q.19). Under AWCS Variant, unlike the Proposed Project, the collection of solid waste using forced air in the subsurface pipeline system, its handling within the proposed facility, and its subsequent off-site transport after compaction would result in increased usage of electricity and transportation fuel. In addition, the use of water for the wet scrubbers would represent an incremental increase in water usage over that for the Proposed Project. Under the AWCS Variant, internal and off-site trash collection truck trips would be reduced and would result in the decreased use of transportation fuel. Energy required to operate the central waste collection facility would not be used in a wasteful manner because the Proposed Project would be required to meet current State and local codes and ordinances concerning energy consumption, including Title 24 and the applicable regulations listed in the San Francisco GHG Checklist. Therefore, energy-related impacts under this variant could be slightly greater than that for the Proposed Project, but would continue to be less than significant and would not require the construction of new, or the expansion of, existing electric transmission/distribution facilities (see discussions under Impacts ME-2 and ME-3).

Based on the above, project-level and cumulative mineral and energy impacts under the AWCS Variant would be similar to those identified under the Proposed Project (see Section 4.Q, Mineral

and Energy Resources). Implementation of the AWCS Variant would not result in new or more severe impacts, would not change the conclusions or mitigation measures identified in that section, and no new mitigation measures would be required.

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