

UTILITIES AND SERVICE SYSTEMS

4.14 UTILITIES AND SERVICE SYSTEMS

This chapter evaluates the potential impacts to water supply, wastewater, stormwater, solid waste, and energy utilities that could occur as a result of Scenarios 5 and 6. This analysis is based on the Regulatory Framework and Existing Conditions information provided in the February 2016 Environmental Impact Report (EIR).

The City of Palo Alto is the only municipality in California that operates a full suite of City-owned utility services.

4.14.1 WATER SUPPLY AND CONSERVATION

This section discusses the regulatory framework, existing conditions, and impacts related to water supply and conservation. Water for the City of Palo Alto is provided primarily by surface water supplies purchased wholesale from the San Francisco Public Utilities Commission (SFPUC).

4.14.1.1 ENVIRONMENTAL SETTING

No revisions are required to the Regulatory Framework and Existing Conditions information presented in the February 2016 Draft EIR except for the following update regarding the 2015 Urban Water Management Plan update (UWMP) (deletions are in ~~strike through~~ and additions are underlined).

Regulatory Framework

Local Framework

In compliance with the SB X7-7 and the Urban Water Management Planning Act, every five years, an UWMP is prepared and submitted as required to the California Department of Water Resources (DWR), ~~per the Urban Water Management Planning Act.~~ The (2015) UWMP update ~~is due~~ was published in June 30, 2016.¹ The Santa Clara Valley Water District (SCVWD), which coordinates with City of Palo Alto Utilities (CPAU) as a planning partner and ~~potential future service provider~~ groundwater manager, also adopted its ~~2010-2015 UWMP in May 2011~~ June 2016.

4.14.1.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant water supply impact if it would:

- Need new or expanded entitlements for water supplies.

¹ City of Palo Alto, Urban Water Management Plan web page, ~~<http://www.cityofpaloalto.org/gov/depts/utl/cng/water/watermgmt.asp>~~ <http://www.cityofpaloalto.org/civicax/filebank/documents/51985>, accessed ~~October 16, 2015~~ on November 30, 2016.

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- Result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project.
- Result in a substantial physical deterioration of a utility facility due to increased use as a result of the project.

4.14.1.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative water supply impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto.

The conclusions below are based on the same analytical approach used in the impact discussions in the February 2016 Draft EIR. The relevant characteristics of Scenarios 5 and 6 are described in detail in Section 3.4 of Chapter 3, Project Description, of this Supplement to the Draft EIR.

UTIL-1	Sufficient water supplies would be available to serve the proposed Plan from existing entitlements and resources and new or expanded entitlements would not be required. (Less than Significant – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

As discussed in the February 2016 Draft EIR, the proposed Plan would result in a significant impact if future development allowed under the Plan would need new or expanded entitlements for water supplies. Buildout of Scenarios 5 and 6 would lead to increases in population and employment in the city and Sphere of Influence (SOI), as shown in Table 3-5 of this Supplement to the Draft EIR. Increased population and employment would differ under each scenario, resulting in slightly different increased water demand under each scenario. However, the increased water demand would be similar under each scenario, as shown in Table 4.14-2. In general, water supply impacts would be the same under both Scenarios 5 and 6, and generally the same as under Scenarios 1 through 4. As discussed below and as shown in Table 4.14-3, all six scenarios would generate demand for 13,766 to 13,768 acre-feet/year (AFY), and the City's Individual Supply Guarantee through 2035 is 19,118 AFY. Sufficient water supplies from existing entitlements would be available to serve each scenario and new or expanded entitlements and resources would not be needed. Therefore, all six scenarios would result in a less-than-significant impact.

Table 4.14-2 shows that buildout of the Plan under each of the six scenarios would result in water demand increase ranging from 782 AFY (Scenario 5) to 785 AFY (Scenario 4). This table was derived with input

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TABLE 4.14-2 WATER DEMAND FOR PROPOSED PLAN – ~~FOUR~~SIX SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)	<u>Scenario 5 (2030)</u>	<u>Scenario 6 (2030)</u>
Residential (GPD)	2,235,501,073	2,242,013,287	2,242,013,287	2,242,147,398	2,242,295,031	<u>2,242,147,398</u>	<u>2,242,559,965</u>
Non-Residential (GPD)	1,995,134,133	2,243,929,290	2,243,517,820	2,243,730,133	2,243,929,290	<u>2,243,445,831</u>	<u>2,243,445,831</u>
Total (GPD)	4,230,635,205	4,485,942,577	4,485,531,107	4,485,877,531	4,486,224,321	<u>4,485,593,230</u>	<u>4,486,005,796</u>
Total (AFY)	12,983	13,767	13,766	13,767	13,768	<u>13,766</u>	<u>13,767</u>
Change from 2014 (AFY)		+784	+783	+784	+785	<u>+782</u>	<u>+784</u>

Notes: GPD=gallons per day; AFY=acre-fee per year

This table is a reproduction and expansion of Table 4.14-2 in the Draft EIR. Revisions to Table 4.14-2 are shown in ~~strike through~~ and underline.

Source: PlaceWorks, ~~2015~~ 2016; and Eric Keniston, City of Palo Alto, April 2014 and April 2015-. See Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Water/Wastewater sheet.

TABLE 4.14-3 CITY OF PALO ALTO WATER SUPPLY/DEMAND BALANCE (AFY) (CITY ONLY)

	2015	2020	2025	2030	2035
Projected SFPUC Demand (AFY)	10,724	11,883	11,411	11,132	10,879
Individual Supply Guarantee (AFY)	19,118	19,118	19,118	19,118	19,118
Difference (AFY)	8,394	7,235	7,707	7,986	8,239

Source: Adapted from City of Palo Alto, 2015 UWMP, Table 26.

from the Palo Alto Utility regarding water demand and is as illustrated by the Water and Wastewater sheet in Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, of this Supplement to the Draft EIR.

The City is responding to the current drought and preparing for potential future droughts in multiple ways. The City began delivering Home Water Reports to Palo Alto residents in November 2013. These reports compare household water consumption with homes of similar characteristics, including size, age, landscape type, area, and number of occupants. The City of Palo Alto offers many resources to help residents use water wisely, including free water surveys, conservation devices, educational programs, and rebates for appliance or landscape upgrades.² The City also presents drought updates to the Utilities Advisory Commission

² More information regarding these resources is available online at the following locations: Residential Water Conservation Rebates – <http://www.cityofpaloalto.org/gov/depts/utl/residents/resrebate/resiwater/default.asp>; Water & Drought Updates – <http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=2336&TargetID=235,310>; and Drought FAQs – <http://www.cityofpaloalto.org/civicax/filebank/documents/43894>. (All links accessed on October 23, 2015.)

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monthly and has held numerous public meetings to update the community on the drought, responses by the State and the City, and available resources.³

The experience of the past four years of drought, and the response actions taken by the state and the City, demonstrate that sufficient water supplies would be available to serve the proposed Plan from existing entitlements and resources and new or expanded entitlements would not be required during single- and multiple-dry years. Therefore, in accordance with the applicable regulations listed below, as well as the 2015 UWMP update published in June 2016, impacts in single- and multiple-dry years under Scenarios 5 and 6 would be *less than significant*.

As described in the February 2016 Draft EIR, Section 4.14.1.1, Climate Change, climate change will increase extreme weather events. More extreme weather patterns could result in increased droughts and the evaporative loss of potable water. The impacts associated with these effects of climate change are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change, of this Supplement to the Draft EIR.

Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (CCR Title 23, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement
- SFPUC's Water System Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)
- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations
- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the 2010 and 2015 *Urban Water Management Plans*

Significance before Mitigation: Sufficient water supplies from existing entitlements would be available to serve development under Scenarios 5 and 6. New or expanded resources and entitlements would not be needed. Therefore, Scenarios 5 and 6 would result in a less-than-significant impact.

³ City of Palo Alto Drought Update, public meeting, August 12, 2015, <http://www.cityofpaloalto.org/civicax/filebank/documents/48513>, accessed on October 23, 2015.

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UTIL-2 The proposed Plan would not result in the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effects. (Less than Significant – Scenarios 5 and 6)

February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

As discussed under Impact UTIL-1, water supply and demand would be essentially the same under Scenarios 1 through 6. The City receives 100 percent of its potable water from the SFPUC. The City does not own or operate a water treatment plant (WTP). The water purchased from the SFPUC may be treated at one or more WTPs operated by SFPUC. SFPUC treats water to meet all applicable drinking water standards. SFPUC periodically makes improvements to its WTPs in order to improve system reliability and accommodate projected growth in its regional service areas. For example, the Water System Improvement Program (WSIP) includes capacity expansion and other improvements to the Tesla Treatment Facility (completed in 2013), Sunol Valley WTP (completed in 2014) and Harry Tracy WTP (97 percent complete).⁴ The WSIP also includes many projects to improve the Regional Water System distribution lines and storage reservoirs. As a result, the proposed Plan would not prompt a need to expand treatment facilities or regional water system conveyance and storage facilities in order to meet its demand and this impact would be *less than significant* under Scenarios 5 and 6.

It is possible that existing local distribution lines within the City may be undersized for future projects and that improvements under Scenarios 5 and 6 could require replacement with larger diameter pipes. Potential environmental impacts could result from construction and operation of these pipeline improvements; however, such impacts would be project-specific. Any new or expanded local water distribution facilities would require permitting and review in accordance with CEQA, which would ensure environmental impacts are disclosed and mitigated to the extent possible. Therefore, in accordance with the applicable regulations listed below, impacts under Scenarios 5 and 6 related to adequate water facilities and service would be *less than significant*.

Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (CCR Title 23, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement

⁴ SFPUC, WSIP, Regional Projects Quarterly Report, 3rd Quarter, FY 1014/2015, <http://sfsewers.org/Modules/ShowDocument.aspx?documentID=7612>, accessed on October 23, 2015.

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- SFPUC's Water Supply Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)
- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations
- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the *2010 and 2015 Urban Water Management Plans*

Significance before Mitigation: Existing water facilities would be able to serve development under Scenarios 5 and 6. Further, any new or expanded facilities would be subject to existing regulations and procedures. Therefore, Scenarios 5 and 6 would result in a less-than-significant impact.

UTIL-3 The proposed Plan would not result in the substantial physical deterioration of a water utility facility due to increased use as a result of the Plan. (Less than Significant – Scenarios 5 and 6)

February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

The discussions under Impacts UTIL-1 and UTIL-2 show that the proposed Plan's estimated increase in water demand under Scenarios 5 (782 AFY) and 6 (784 AFY) at buildout (2030) represents less than 5 percent of the lowest supply (16,477 AFY) available from the supply agreements with SFPUC through the buildout period. The SFPUC owns, operates, and maintains the water conveyance, storage, and treatment system that supplies water to the City and its other wholesale customers. This "wholesale" water system has been extensively upgraded through the ongoing WSIP. The City of Palo Alto Utilities Water Engineering Section is responsible for planning, designing, budgeting, and construction of major capital improvements to the City's "retail" water distribution system. This program replaces approximately 15,000 linear feet of water mains each year. Water Engineering is also implementing an Emergency Water Supply and Storage Project to increase the City's water system storage and supply reliability during catastrophic emergencies.⁵ Also, the nature and character of water use and delivery would be similar with and without the Plan. Therefore, in accordance with the applicable regulations listed below, the proposed Plan would not result in a substantial physical deterioration of a water utility facility due to increased use as a result of the Plan, resulting in a *less-than-significant* impact under Scenarios 5 and 6.

⁵ City of Palo Alto Utilities Water Engineering and Operations, <http://www.cityofpaloalto.org/gov/depts/utl/eng/water/>, accessed on October 16, 2015.

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Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (CCR Title 23, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement
- SFPUC’s Water Supply Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.08 (California Plumbing Code); Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)
- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations
- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the *2010 and 2015 Urban Water Management Plans*
- City of Palo Alto Utilities Capital Improvement Program

Significance before Mitigation: Existing water facilities would be able to serve development under Scenarios 5 and 6 without substantial deterioration or the need for new or expanded facilities. Therefore, both Scenarios 5 and 6 would result in a less-than-significant impact.

4.14.1.4 CUMULATIVE IMPACTS

UTIL-4 The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to water supply. (Less than Significant – Scenarios 5 and 6)

February 2016 Draft EIR Findings: Less-than-significant cumulative impact for Scenarios 1 through 4.

Summary of Supplemental Analysis: The cumulative impact would be less than significant for Scenarios 5 and 6.

This section analyzes potential cumulative impacts to water supply that could occur from Scenarios 5 and 6 in combination with past, present, and other reasonably foreseeable projects in the surrounding area. The geographic scope of this cumulative analysis is the SFPUC retail and wholesale service area. The City’s 2010 and 2015 UWMPs both indicate that the City has sufficient water supply to meet demand in normal years. The last four years of drought have demonstrated that existing water supplies from SFPUC also were sufficient to serve the City during the current multiple-year drought period. The 2010 and 2015 UWMPs, the *Water Shortage Allocation Plan* of the Water Supply Assessment (WSA), the WSIP, the City’s *Water Shortage Contingency Plan*, and mandatory State emergency water use restrictions also indicate that there are plans and

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programs in place to ensure sufficient water during future single- and multiple-dry years. Similarly, the cumulative water supply needs of the proposed Plan in combination with past, present, and reasonably foreseeable projects in the SFPUC wholesale service territory during normal, single-, and multiple-dry years could be met by 1) State voluntary and mandatory water conservation and water efficiency measures, 2) SFPUC voluntary and mandatory water conservation and water efficiency measures, 3) City water conservation measures called for in the Municipal Code and emergency conservation ordinance, 4) Bay Area Water Supply and Conservation Agency (BAWSCA)'s long-term water supply strategy, and 5) SFPUC's WSIP improvements. Cumulative projects would contribute to additional water demands. However, future projects would be subject to the same water conservation efforts, water efficiency measures, and water supply improvements to balance supply and demand as would the proposed Plan. In particular, cumulative projects within the SFPUC wholesale service area would be subject to State and SFPUC voluntary and mandatory conservation measures to reduce usage, the BAWSCA's long-term water supply strategy to enhance supplies, and the SFPUC's WSIP projects to improve the regional water system reliability and capacity.

In adopting the WSIP, the SFPUC approved a water supply plan that provides for an Interim Supply Limitation (ISL) with an automatic sunset in 2018. For the period up to the sunset of the ISL in 2018, Palo Alto's Interim Supply Allocation (ISA) is 14.70 MGD (or 16,477 AFY). The SFPUC has provided a supply commitment of 184 MGD for the wholesale agencies through 2030. After 2018, the City has a "perpetual" Individual Supply Guarantee (ISG) of 17.07 MGD (or 19,118 AFY)⁶ from the SFPUC and projects demands will remain below the City's ISG through the 2015 UWMP planning horizon of 2035.

There would be adequate water supplies to serve the proposed Plan under Scenarios 5 and 6 in combination with other reasonably foreseeable projects in the SFPUC wholesale service area. Therefore, in accordance with the applicable regulations listed below, cumulative impacts would be *less than significant* under Scenarios 5 and 6.

Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (Title 23 CCR, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement
- SFPUC's Water Supply Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)

⁶ City of Palo Alto, 2016, Urban Water Management Plan for 2015, page 18.

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- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations
- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the 2010 and 2015 *Urban Water Management Plans*

Significance before Mitigation: Existing water supply would be able to serve cumulative development under Scenarios 5 and 6, and new or expanded supply would not be needed. Further, any new or expanded facilities would be subject to existing regulations and procedures and cumulative development would be subject to water conservation and efficiency efforts. Therefore, Scenarios 5 and 6 would result in a less-than-significant cumulative impact.

4.14.2 WASTEWATER COLLECTION AND TREATMENT

This section describes the regulatory framework, existing conditions, and impacts related to wastewater collection and treatment. Wastewater collection services in the city and SOI are provided by the CPAU and wastewater treatment services are provided by the City of Palo Alto Public Works Department.

4.14.2.1 ENVIRONMENTAL SETTING

No revisions are required to the Regulatory Framework and Existing Conditions information presented in the February 2016 Draft EIR except for the following change regarding RWQCB Order No. R2-2014-0024.

Regulatory Framework

Federal Regulations

National Pollutant Discharge Elimination System

The NPDES permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges, urban runoff, and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities. Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

The City of Palo Alto manages the Regional Water Quality Control Plant (RWQCP), a regional wastewater treatment plant, for the cities of Los Altos, Los Altos Hills, Palo Alto, and Mountain View; the East Palo Alto

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Sanitary District; and Stanford University. The agreement requires all six agencies to proportionately share in the costs of building and maintaining the facilities.

Operation of the Palo Alto RWQCP and its wastewater collection system is regulated by Waste Discharge Requirements (WDRs; NPDES No. CA0037834), found in RWQCB Order No. R2-2014-0024,⁷ effective August 1, 2014, and expiring July 31, ~~2018~~ 2019. The effluent from the RWQCP also is subject to two other NPDES permits: 1) the WDRs for mercury and polychlorinated biphenyls (PCBs) from municipal and industrial wastewater discharges to San Francisco Bay (NPDES No. CA0038849); and 2) waste discharge requirements for nutrients from municipal wastewater discharges to San Francisco Bay (NPDES No. CA0038873). The three NPDES permits enable Palo Alto to discharge treated wastewater into San Francisco Bay and Matadero Creek.

4.14.2.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact to wastewater collection and treatment facilities if it would:

- Exceed wastewater treatment requirements of the Regional Water Quality Control Board.
- Result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project.
- Result in a substantial physical deterioration of a utility facility due to increased use as a result of the project.

4.14.2.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative wastewater collection and treatment impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto.

The conclusions below are based on the same analytical approach used in the impact discussions in the February 2016 Draft EIR. The relevant characteristics of Scenarios 5 and 6 are described in detail in Section 3.4 of Chapter 3, Project Description, of this Supplement to the Draft EIR.

⁷ San Francisco Regional Water Quality Control Board waste discharge permit for City of Palo Alto's RWQCP and wastewater collection system, http://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2014/R2-2014-0024.pdf, accessed on October 23, 2015.

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UTIL-5 The proposed Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant – Scenarios 5 and 6)

February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

As discussed in the February 2016 Draft EIR, the proposed Plan would result in a significant impact to wastewater collection and treatment facilities if it would exceed wastewater treatment requirements of the Regional Water Quality Control Board.

The current WDRs (NPDES No. CA0037834) for the RWQCP and wastewater collection system are found in RWQCB Order No. R2-2014-0024, effective August 1, 2014 and expiring July 31, 2019. The NPDES Order sets out a framework for compliance and enforcement applicable to operation of the RWQCP and its effluent, as well as those contributing influent to the RWQCP. This NPDES Order currently allows dry weather discharges of up to 39 MGD with full tertiary treatment, and wet weather discharges of up to 80 MGD. The RWQCP currently tests for approximately 70 different parameters in ten different main process sample streams. This monitoring allows for a very good assessment of the performance of RWQCP processes. The *Long Range Facilities Plan* (LRFP) for the RWQCP adopted in 2012 found that the existing facilities were operating within normal ranges. The existing secondary and tertiary treatment systems are adequately treating the wastewater to meet the existing discharge requirements. The RWQCP has a good record for meeting its effluent discharge permit limits.⁸

Based on the treatment process's design criteria and historical performance, it is anticipated that the existing RWQCP facilities will provide adequate capacity to meet dry weather and maximum month flows through at least 2035.⁹ In addition, based on the LRFP, projected dry weather flows are anticipated to be between 28 and 34 MGD in the year 2062, which is below the dry weather flow design capacity of the plant (39 MGD). If and when the dry weather flows reaches 80 percent of capacity, an engineering study would be conducted, as called for by the Basic Agreement among RWQCP partnering agencies.¹⁰

Using the conservative assumption that 100 percent of the net increase in indoor water demand for the proposed Plan becomes wastewater, the estimated net increased wastewater generation rate from the proposed Plan at buildout would be 630,013 gallons per day (GPD) under Scenario 5 and 631,032 GPD under Scenario 6 (see Table 4.14-4). This increase in wastewater generation (i.e., a maximum of

⁸ Palo Alto's Long Range Facilities Plan for the RWQCP, 2012, page 1-8, <http://www.cityofpaloalto.org/civicax/filebank/documents/29614>, accessed on October 23, 2015.

⁹ Palo Alto's Long Range Facilities Plan for the RWQCP, May 2012, page 1-8, <http://www.cityofpaloalto.org/civicax/filebank/documents/29614>, accessed on October 23, 2015.

¹⁰ City of Mountain View, 2016, comment letter on the February 2016 Draft EIR, from Martine Alkire, City of Mountain View, to Elena Lee, City of Palo Alto, May 3, 2016

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TABLE 4.14-4 WASTEWATER GENERATION FOR PROPOSED PLAN – ~~FOUR~~SIX SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)	Scenario 5 (2030)	Scenario 6 (2030)
Wastewater Generation (gallons/year)	3,815,750,000	4,046,020,174	4,045,649,055	4,045,961,507	4,046,274,287	<u>4,045,705,086</u>	<u>4,046,077,193</u>
Wastewater Generation (GPD)	10,454,110	11,085,003	11,083,986	11,084,842	11,085,699	<u>11,084,123</u>	<u>11,085,142</u>
Change from 2014 (GPD)		630,893	629,858	630,732	631,589	<u>630,013</u>	<u>631,032</u>

Notes: GPD = gallons per day

This table is a reproduction and expansion of Table 4.14-4 in the Draft EIR. Revisions to Table 4.14-4 are shown in ~~strikethrough~~ and underline.

Source: Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Water and Wastewater sheet. Also, Eric Keniston, City of Palo Alto, April 2014 and April 2015.

approximately 0.631 MGD) would not be significant relative to currently available and projected excess treatment capacity. This analysis is additionally conservative because it assumes that 100 percent of indoor water demand becomes wastewater and because the estimated water demand itself does not account for future conservation measures.

The City of Palo Alto, serving as the Discharger, has an approved pretreatment program, which includes approved local limits as required by the NPDES permit. The permit requires the Discharger to evaluate its local limits, such as those established by the other entities contributing to the RWQCP, to ensure compliance with updated effluent limits. The RWQCP is required to monitor the permitted discharges into the collection system in order to evaluate compliance with the RWQCP's permit conditions.

In accordance with the applicable regulations listed below, wastewater generated from potential future development under the proposed Plan would not exceed the wastewater treatment requirements or capacity of the RWQCP. Therefore, the wastewater treatment requirements of the San Francisco RWQCB would not be exceeded due to buildout of the proposed Plan, resulting in a *less-than-significant* impact under Scenarios 5 and 6.

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for operation of the RWQCP
- State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay

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- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP.
- City of Palo Alto Municipal Code, Chapter 16.09, Sewer Use Ordinance
- *City of Palo Alto Utilities Sewer System Management Plan*

Significance before Mitigation: Wastewater treatment requirements would be the same under Scenarios 5 and 6, and neither of the scenarios would exceed the wastewater treatment requirements of the San Francisco RWQCB. Therefore, Scenarios 5 and 6 would result in a less-than-significant impact.

UTIL-6 **The proposed Plan would not result in a determination by the wastewater treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the Plan's projected demand in addition to the provider's existing commitments. (Less than Significant – Scenarios 5 and 6)**

February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

As described in the February 2016 Draft EIR, the proposed Plan would result in a significant impact to wastewater collection and treatment facilities if it would result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

Table 4.14-4 (under Impact UTIL-5) shows that the wastewater generation increase would be 630,013 GPD under Scenario 5 and 631,032 GPD under Scenario 6 (see Table 4.14-4). This table was derived with input from the CPAU regarding wastewater demand. Table 4.14-4 shows that the proposed Plan's estimated worst-case increase in wastewater flow represents less than 4 percent of the existing excess dry flow capacity of 18 MGD available at the RWQCP.¹¹ The LRFP further estimates that the RWQCP would have at least 5 MGD of excess capacity in 2062.

Although some aging facilities will need to be replaced, based on the treatment processes design criteria and historical performance, the LRFP anticipates that the existing RWQCP facilities will provide adequate capacity to meet dry weather and maximum month flows through at least 2035, assuming the same level of treatment is required. Projected dry weather flows are anticipated to be between 28 and 34 MGD in the year 2062, which is below the dry weather flow design capacity of the plant (39 MGD).

¹¹ Permitted dry weather capacity (39 MGD) minus average dry weather flow (21 MGD) = 18 MGD.

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In accordance with the applicable regulations listed below, wastewater generated from potential future development under the proposed Plan would not exceed the capacity of the RWQCP. As such, the proposed Plan would not result in a determination that the RWQCP does not have adequate capacity to serve the Plan's projected demand in addition to the provider's existing commitments, resulting in a *less-than-significant* impact under Scenarios 5 and 6.

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for RWQCP
- SWRCB Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP
- City of Palo Alto Municipal Code, Chapter 1609, Sewer Use Ordinance
- City of Palo Alto Utilities Sewer System Management Plan

Significance before Mitigation: Existing wastewater facilities would have adequate capacity to serve each scenario and the proposed Plan would not result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve projected demand. Therefore, Scenarios 5 and 6 would result in a less-than-significant impact.

UTIL-7	The proposed Plan would not result in adverse physical impacts from new or expanded wastewater utility facilities required to provide service as a result of the Plan. (Less than Significant – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

As described in the February 2016 Draft EIR, the proposed Plan would result in a significant impact to wastewater collection and treatment facilities if it would result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project.

The discussions under Impacts UTIL-5 and UTIL-6 show that the existing RWQCP facilities would provide adequate capacity to meet dry weather and maximum month flows through at least 2035 and beyond, and that new or expanded facilities would not be needed as a result of either Scenario 5 or Scenario 6. Some aging facilities will need to be replaced, based on the treatment processes design criteria and historical

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performance. However, these facility upgrades and replacements are anticipated based on existing planning documents and would not be necessitated as a result of the proposed Plan. In addition, the LRFP anticipates that the existing RWQCP facilities will provide adequate capacity to meet dry weather and maximum month flows through at least 2035, assuming the same level of treatment is required. Therefore, the proposed Plan under Scenarios 5 and 6 would not result in adverse physical impacts from new or expanded wastewater utility facilities required to provide service as a result of the Plan, resulting in a *less-than-significant* impact.

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for RWQCP
- SWRCB Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP
- City of Palo Alto Municipal Code, Chapter 1609, Sewer Use Ordinance
- *City of Palo Alto Utilities Sewer System Management Plan*

Significance before Mitigation: Existing wastewater facilities would have adequate capacity to serve development under Scenarios 5 and 6. Thus, neither of the scenarios would require new or expanded wastewater utility facilities and the impact under both scenarios would be less than significant.

UTIL-8 The proposed Plan would not result in a substantial physical deterioration of a wastewater utility facility due to increased use as a result of the Plan. (Less than Significant – Scenarios 5 and 6)

February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

As described in the February 2016 Draft EIR, the proposed Plan would result in a significant impact to wastewater collection and treatment facilities if it would result in a substantial physical deterioration of a utility facility due to increased use as a result of the project.

The discussions under Impacts UTIL-5, UTIL-6, and UTIL-7 above show the proposed Plan’s estimated worst-case increase in wastewater flow (a maximum of approximately 0.631 MGD) at buildout represents less than 4 percent of the existing excess dry flow capacity available at the RWQCP of 18 MGD. In addition,

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the LRFP estimates that RWQCP would have at least 5 MGD of excess capacity in 2062. Both Scenarios 5 and 6 would allow residential and non-residential development consistent with existing land use types in the EIR Study Area. Therefore, the nature and character of the wastewater would be similar with and without the Plan. In accordance with the applicable regulations listed below, the proposed Plan would not result in a substantial physical deterioration of a wastewater utility facility due to increased use as a result of the Plan, resulting in a *less-than-significant* impact under Scenarios 5 and 6.

As described in Section 4.14.2.2, Existing Conditions, of the February 2016 Draft EIR, sea levels along the San Francisco Bay are expected to rise up to 69 inches due to climate change.¹² The RWQCP is a critical facility at risk to sea level rise. Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. The impacts associated with sea level rise are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change, of this Supplement to the Draft EIR.

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for RWQCP
- SWRCB Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP
- City of Palo Alto Municipal Code, Chapter 1609, Sewer Use Ordinance
- City of Palo Alto *Utilities Sewer System Management Plan*

Significance before Mitigation: Wastewater facilities would have adequate capacity to serve development under Scenarios 5 and 6 and the proposed Plan would not result in a substantial increase in the volume of wastewater or a substantially different quality of wastewater. Impacts under Scenarios 5 and 6 would be less than significant.

4.14.2.4 CUMULATIVE IMPACTS

This section analyzes potential impacts related to wastewater treatment that could occur from the proposed Plan in combination with reasonably foreseeable growth within the RWQCP service area.

¹² San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*.

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UTIL-9 **The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to wastewater. (Less than Significant – Scenarios 5 and 6)**

February 2016 Draft EIR Findings: Less-than-significant cumulative impact for Scenarios 1 through 4.

Summary of Supplemental Analysis: The cumulative impact would be less than significant for Scenarios 5 and 6.

Buildout of the proposed Plan under Scenarios 5 and 6 would generate a moderate increase in the volume of wastewater delivered for treatment at the RWQCP. This increase represents less than 5 percent of the available treatment capacity at the RWQCP and it would occur incrementally until the proposed Plan horizon. The RWQCP serves the Plan Area and currently uses significantly less than its design and permitted wastewater treatment capacity. Based on the cumulative wastewater treatment demand predicted in the LRFP for the service area of the RWQCP, demand generated throughout the proposed Plan buildout period is far below the excess capacity of the RWQCP. Because the cumulative demand would not substantially impact the existing or planned capacity of the wastewater treatment system, which has sufficient capacity for wastewater that would be produced by the proposed Plan, the construction of new wastewater treatment facilities would not be necessary.

Additionally, future development in the RWQCP service area would be subject to the development review process within each project's local jurisdiction and would be required to mitigate any effects to wastewater treatment services on a project-by-project basis. Future development would also be required to comply with all applicable federal, State, and regional regulations and ordinances protecting wastewater treatment services.

Wastewater from cumulative projects would be treated according to the wastewater treatment requirements documented in the NPDES permit for the RWQCP and enforced by the San Francisco RWQCB.

Therefore, cumulative development combined with the proposed Plan would not exceed wastewater treatment requirements, and cumulative impacts to sanitary wastewater service under Scenarios 5 and 6 would be *less than significant*.

Significance before Mitigation: Existing wastewater treatment capacity would be able to serve cumulative development under Scenarios 5 and 6, and new or expanded supply would not be needed. Further, any new or expanded facilities would be subject to existing regulations and procedures. Therefore, Scenarios 5 and 6 would result in a less-than-significant cumulative impact.

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4.14.3 STORMWATER COLLECTION

This section describes the regulatory framework, existing conditions, and impacts related to stormwater collection facilities.

4.14.3.1 ENVIRONMENTAL SETTING

No revisions are required to the Regulatory Framework and Existing Conditions information presented in the February 2016 Draft EIR.

4.14.3.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact to stormwater facilities if it would:

- Require or result in the construction of new stormwater facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project.
- Result in a substantial physical deterioration of a utility facility due to increased use as a result of the project.

4.14.3.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative stormwater collection impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto.

The conclusions below are based on the same analytical approach used in the impact discussions in the February 2016 Draft EIR. The relevant characteristics of Scenarios 5 and 6 are described in detail in Section 3.4 of Chapter 3, Project Description, of this Supplement to the Draft EIR.

UTIL-10	The proposed Plan would not require or result in the construction of new stormwater facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

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Development allowed by Scenarios 5 and 6 would lead to increases in housing units and population in the city and SOI. Nevertheless, each new development or redevelopment project would be required to comply with the C.3 provisions of the Municipal Regional Permit (MRP) and implement BMPs and LID features to minimize stormwater runoff impacts. In particular, during construction all projects would be required to implement flow control BMPs to minimize potential impacts. Also, none of the scenarios propose conversion of open space areas, creeks, or wetlands to impervious surfaces and none of the scenarios would alter the course of a stream or river. The City's Department of Public Works requires all new development or redevelopment projects to provide storm drain flow and detention calculations, including pre-project and post-project conditions and flow rates. On-site stormwater detention is also required as per the C.3 provisions of the MRP. In addition, per section C.3.j, the Permittees shall complete and implement a Green Infrastructure Plan for the inclusion of low impact development drainage design into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other storm drain infrastructure elements. Given these conditions placed on development, scenarios 5 and 6 would result in a less-than-significant impact.

With implementation of these measures, and as further discussed in UTIL-11 below, impacts associated with construction of stormwater runoff facilities for future development allowed by the proposed Plan under Scenarios 5 and 6 would be *less than significant*.

Applicable Regulations:

- California Water Code Sections 13000 et seq.: Porter-Cologne Water Quality Act
- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- City of Palo Alto Municipal Code 16.11 – Stormwater Pollution Prevention
- City of Palo Alto Municipal Code 16.28 – Grading and Erosion and Sediment Control
- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: Development under Scenarios 5 and 6 would be subject to existing State, regional, and local regulations and procedures that would prevent potential impacts from the construction of new stormwater facilities or expansion of existing facilities. Therefore, this impact would be less than significant.

UTIL-11	The proposed Plan would not result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project. (Less than Significant – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

Within Palo Alto, all new development and redevelopment projects will be required to comply with post-construction site design measures, source control measures, and stormwater treatment measures. The City's Department of Public Works requires all new development or redevelopment projects to provide storm drain flow and detention calculations that compare pre- and post-project flow rates and volumes. The calculations must be signed and stamped by a registered civil engineer. On-site stormwater detention may also be required to lessen the project's impact on the City's storm drain system. A final grading and drainage plan must be prepared by a licensed professional that shows the existing and proposed on-site drainage layout, locations, and elevations and shows the conveyance of stormwater to the nearest City storm drain system. Existing drainage patterns, including the accommodation of off-site runoff, must be maintained to the extent possible. The Department of Public Works encourages developers to retain stormwater on-site to the extent feasible by directing runoff to landscaped areas, constructing subsurface infiltration systems or bioretention areas, and using pervious pavement where feasible.

Changes in the timing, peak discharge, and volume of runoff from a site due to land development is known as "hydromodification." When a site is developed, some of the rainwater can no longer infiltrate into the soil so it flows off-site at faster rates and greater volumes in a shorter period of time. As a result, erosive levels of flow can occur in creeks and channels downstream of the project. Projects in susceptible areas are subject to hydromodification management (HM) requirements, as defined by the Hydromodification Program (HMP) Applicability Map for Palo Alto.¹³ The HM requirement states that all projects that create and/or replace 1 acre or more of impervious surface within the mapped susceptible areas must implement flow control measures so that post-project runoff rates and durations do not exceed estimated pre-project rates and durations. Some of the areas south of State Route 82 are within the area subject to HM requirements.

Changes in stormwater flow volumes or drainage patterns could require construction and operation of new or expanded stormwater facilities. However, each new development or redevelopment project would be required to comply with the C.3 provisions of the MRP and implement BMPs and LID features to minimize stormwater runoff impacts. Moreover, Scenarios 5 and 6 do not propose conversion of open space areas, creeks, or wetlands to impervious surfaces and none of the scenarios would alter the course of a stream or river. Additionally, the City of Palo Alto's Engineering Design Standards require all new storm drains to be designed to convey the flow from a 10-year storm event and six-hour duration. The Department of Public Works also requires all new development or redevelopment projects to provide storm drain flow and detention calculations, including pre-project and post-project conditions and flow rates. Finally, on-site stormwater detention is also required as per the C.3 provisions of the MRP.

¹³ Hydromodification Program Applicability Map for Palo Alto, http://www.scvurppp-w2k.com/HMP_app_maps/Palo_Alto_HMP_Map.pdf, accessed on October 16, 2015.

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With implementation of these measures, impacts associated with operation of new or expanded stormwater utilities for future development allowed by the proposed Plan under Scenarios 5 and 6 would be *less than significant*.

Applicable Regulations:

- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- City of Palo Alto Municipal Code 16.11 – Stormwater Pollution Prevention
- City of Palo Alto Municipal Code 16.28 – Grading and Erosion and Sediment Control
- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: Development under Scenarios 5 and 6 would be subject to existing State, regional, and local regulations and procedures that would prevent potential impacts from the construction of new stormwater facilities or expansion of existing facilities. Therefore, this impact would be less than significant.

UTIL-12 The proposed Plan would not result in a substantial physical deterioration of a utility facility due to increased use as a result of the project. (Less than Significant – Scenarios 5 and 6)

February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

As described in the February 2016 Draft EIR, the proposed Plan would result in a significant impact if increased stormwater utility usage as a result of development allowed by the Plan would result in substantial physical deterioration of those facilities.

The Public Works Department requires all new development or redevelopment projects to provide storm drain flow and detention calculations, including pre-project and post-project conditions and flow rates. On-site stormwater detention is also required as per the C.3 provisions of the MRP.

All new and redevelopment projects that create or replace 10,000 square feet or more of impervious space (or 5,000 square feet for certain types of development, as discussed above) would be required to comply with the C.3 provisions of the MRP requirements, including implementing various post-construction BMPs and LID features that include site design, stormwater treatment, runoff retention, and peak flow management. Also, for projects that create or replace 1 acre or more of impervious surface, post-project stormwater peak flows discharged from the site must not exceed pre-project flow rates, if the site is in a

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HM area. These measures will minimize the amount of stormwater runoff from the new sites. With implementation of the measures described above and the applicable regulations listed below, impacts associated with deterioration of stormwater utilities under Scenarios 5 and 6 would be *less than significant*.

As described in Section 4.14.3.2, Existing Conditions, of the February 2017 Draft EIR, sea levels along the San Francisco Bay are expected to rise up to 69 inches due to climate change.¹⁴ The City's stormwater pump stations are critical facilities at risk to sea level risk. Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. The impacts associated with sea level rise are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change, of this Supplement to the Draft EIR.

Applicable Regulations:

- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- City of Palo Alto Municipal Code 16.11 – Stormwater Pollution Prevention
- City of Palo Alto Municipal Code 16.28 – Grading and Erosion and Sediment Control
- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: Development under Scenarios 5 and 6 would be subject to existing State, regional, and local regulations and procedures that would prevent potential impacts associated with the deterioration of stormwater utilities. Therefore, this impact would be less than significant.

4.14.3.4 CUMULATIVE IMPACTS

UTIL-13	The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to stormwater facilities. (Less than Significant – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less-than-significant cumulative impact for Scenarios 1 through 4.

Summary of Supplemental Analysis: The cumulative impact would be less than significant for Scenarios 5 and 6.

¹⁴ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*.

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As discussed in the February 2016 Draft EIR, this analysis takes into account growth projected by the proposed Plan within Palo Alto and its SOI, in combination with impacts from projected growth in the rest of Santa Clara County and the surrounding region. The geographic context used for the cumulative assessment of stormwater facility impacts encompasses the four watersheds that include the City of Palo Alto and SOI: San Francisquito Creek watershed, Matadero Creek watershed, Barron Creek watershed, and Adobe Creek watershed.

As discussed previously, development within the city and SOI would require conformance with State and local policies and regulations that would reduce hydrologic and stormwater facility impacts to less-than-significant levels. When applicable, any additional new development within the city would be subject, on a project-by-project basis, to independent CEQA review as well as design guidelines, Municipal Code requirements, and other applicable City policies and procedures that reduce impacts related to hydrology and stormwater facilities. More specifically, potential changes related to stormwater flows, drainage, impervious surfaces, and flooding would be minimized by implementation of stormwater control measures, retention, infiltration, and LID measures, and review by the City's Public Works Department to integrate measures to reduce potential storm drain and flooding impacts. In addition, per section C.3.j, the Permittees under the MRP shall complete and implement a Green Infrastructure Plan for the inclusion of low impact development drainage design into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other storm drain infrastructure elements.

Under NPDES requirements, all new development or redevelopment projects that create or replace 10,000 square feet of impervious surface (or 5,000 square feet for certain types of development) must comply with the C.3 provisions of the MRP and implement site design, source control, and LID features. In addition, all projects that create or replace 1 acre or more of impervious surface in hydromodification areas must match post-project peak flow rates to pre-project peak flows rates. These measures will ensure that new cumulative development and/or redevelopment projects do not contribute to on-site or off-site flooding and will minimize potential impacts to the existing storm drain system.

Within the cumulative setting, in areas subject to the jurisdiction of SCVWD (i.e., discharge to regional channels or streams), the stormwater runoff generated from the 100-year design storm must be safely conveyed without contributing to downstream or upstream flooding conditions.

All cumulative projects would be subject to similar permit requirements and would be required to comply with City ordinances and proposed Plan policies, as well as numerous federal, State, and regional stormwater regulations that control construction-related and operational discharge of stormwater. The stormwater regulations implemented by the San Francisco Bay RWQCB take a basin-wide approach and consider stormwater flow in a regional context. For these reasons, impacts of Scenarios 5 and 6 on hydrology and stormwater facilities are not cumulatively considerable and the cumulative impact would be *less than significant*.

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Applicable Regulations:

- California Water Code Sections 13000 et seq.: Porter-Cologne Water Quality Act
- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- SWRCB Order No. 97-03 DWQ for Storm Water Discharges Associated with Industrial Activities, NPDES General Permit No. CAS000001
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- SCVWD Ordinance 83-2 – Santa Clara Valley Water District Act
- City of Palo Alto Municipal Code Chapter 16.14, California Green Building Standards Code
- City of Palo Alto Municipal Code Chapter 16.11, Stormwater Pollution Prevention
- City of Palo Alto Municipal Code Chapter 16.28, Grading and Erosion and Sediment Control
- City of Palo Alto Municipal Code Chapter 16.09, Sewer Use Ordinance
- City of Palo Alto Construction Dewatering System Policy
- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: All cumulative projects would be subject to federal, State, regional, and local regulations and procedures that control construction-related and operational discharge of stormwater. Therefore, neither Scenario 5 nor Scenario 6 would contribute to cumulative impacts and the impact would be less than significant.

4.14.4 SOLID WASTE COLLECTION, RECYCLING, AND DISPOSAL

This section describes the regulatory framework, existing conditions, and impacts related to solid waste disposal services in Palo Alto. GreenWaste of Palo Alto is the City's contractor for the collection and transportation of municipal solid waste, commercial organics, residential yard trimmings, and mixed recycling.

4.14.4.1 ENVIRONMENTAL SETTING

No revisions are required to the Regulatory Framework and Existing Conditions information presented in the February 2016 Draft EIR except for the following detail regarding the City's Municipal Code (deletions are in ~~strike through~~ and additions are underlined).

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Regional and Local Regulation

City of Palo Alto Municipal Code

Chapter 5.30, Expanded Polystyrene and Non-recyclable Food Service Containers

Except as provided by Chapter 5.30.030, this chapter prohibits food vendors from providing prepared food in disposable food service containers made from expanded polystyrene or non-recyclable plastic. In addition, except as provided by Chapter 5.30.030, all City facilities, City managed concessions, City sponsored events, and City permitted events are prohibited from using disposable food service containers made from expanded polystyrene or non-recyclable plastic. Effective March 1, 2016, this chapter further prohibits the retail sale or distribution of plastic foam ice chests, egg cartons, foodware and packaging materials.

4.14.4.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant solid waste impact if it would:

- Be served by a landfill with insufficient permitted capacity.
- Not comply with federal, State, and local statutes and regulations related to solid waste.

4.14.4.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative solid waste collection impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto.

The conclusions below are based on the same analytical approach used in the impact discussions in the February 2016 Draft EIR. The relevant characteristics of Scenarios 5 and 6 are described in detail in Section 3.4 of Chapter 3, Project Description, of this Supplement to the Draft EIR.

UTIL-14	The proposed Plan would be served by landfills with sufficient permitted capacity to accommodate the proposed Plan's solid waste disposal needs. (Less than Significant – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less than significant for Scenarios 1 through 4.

Summary of Supplemental Analysis: The impact would be less than significant for Scenarios 5 and 6.

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The 2014 baseline solid waste generation rate for Palo Alto and the SOI was estimated by the City to be 51,265 tons/year.¹⁵ This 2014 baseline was derived by averaging the solid waste generated by the City and SOI over years 2011 through 2013 (see Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Inputs sheet).

Increases in solid waste generation over baseline (2014) in the city and SOI at buildout (2030) are estimated in Table 4.14-5 for each of the six scenarios. The incremental increases shown in Table 4.14-5 are conservative (i.e., they potentially overestimate impacts) because they assume per capita and per employee waste generation rates would remain at 2014 levels.

In 2013, CalRecycle reported that while the overall total of 43,730 tons of solid waste from Palo Alto was disposed at 17 different landfills, the majority (93 percent or 40,886 tons) went to three landfills. Table 4.14-6 in the February 2016 Draft EIR compares the maximum daily capacity and estimated closure date for each of the three facilities.

The City's disposal rate per resident in 2014 was 3.6 pounds of solid waste pounds per day (PPD), which was below the CalRecycle target of 7.1 PPD per resident. The disposal rate per business employee in the city in 2013 was 2.5 PPD, which was well below the CalRecycle target rate of 8.2 PPD per employee.^{16,17} The City's disposal rates for both residents and employees have been below target rates since 2007.¹⁸

Two of the three landfills that receive the majority of the city's solid waste are likely to reach their permitted maximum capacities in 2022 (Kirby) and 2023 (Ox Mountain), respectively. The other landfill is not estimated to close until 2107 (Monterey Peninsula Landfill). All of these closure dates are after the City's goal year (2021) for achieving virtually zero waste from Palo Alto sent to landfills.¹⁹ One closure date is beyond the horizon year for the proposed Plan (2030). In addition, there are 17 landfills that received waste from the Palo Alto in 2014. If one or more of these landfills were unavailable in the future, it is likely

¹⁵ Average daily cover (ADC) is estimated to be 2,923 tons/year, which yields a total waste + ADC = 54,188 tons/year for baseline (2014). (See Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Inputs and Waste sheets).

¹⁶ CalRecycle, Jurisdiction Diversion Post 2006, <http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx>, accessed on October 26, 2015.

¹⁷ CalRecycle also reports the City's per capita disposal rate 2014 data are still "awaiting review" by the agency. According to the CalRecycle web site, "Awaiting Review" means "The Department has not completed its analysis, or approved the per capita disposal figures or program implementation for the years included in this review cycle." <http://www.calrecycle.ca.gov/LGCentral/DataTools/Reports/BRDefine.htm#Annual>, accessed on October 26, 2015.

¹⁸ The per capita disposal rate target is also known as "the 50 percent equivalent per capita disposal target." It is the amount of disposal Palo Alto would have had during the 2003 – 2006 base period (designated by CalRecycle) if it had been exactly at a 50 percent diversion rate. It is calculated by CalRecycle using the average base period per capita generation for Palo Alto (in pounds), then dividing this generation average in half to determine the 50 percent equivalent per capita disposal target. The target is an indicator for comparison with that jurisdiction's annual per capita per day disposal rate beginning with the 2007 program year.

¹⁹ In October 2005, the City reached beyond the requirements of AB 939 and established a goal of 73 percent diversion by 2011 and to strive for zero waste by eliminating materials sent to landfills by 2021. The City's Zero Waste Operational Plan identifies the policies, programs and facilities that will be needed to reach this goal.

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TABLE 4.14-5 INCREASE IN SOLID WASTE GENERATION OVER BASELINE (2014) IN THE CITY AND SOI AT BUILDOUT (2030) – ~~FOUR~~SIX SCENARIOS

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	<u>Scenario 5</u>	<u>Scenario 6</u>
New Population	9,405	9,405	11,240	13,260	<u>11,240</u>	<u>16,885</u>
Residential Rate (PPD)	3.6	3.6	3.6	3.6	<u>3.6</u>	<u>3.6</u>
Daily Residential Total (pounds)	33,858	33,858	40,464	47,736	<u>40,464</u>	<u>60,786</u>
Annual Residential Total (tons)	6,179	6,179	7,385	8,712	<u>7,385</u>	<u>11,093</u>
New Employees	15,870	10,240	13,145	15,870	<u>9,255</u>	<u>9,255</u>
Employee Rate (PPD)	2.5	2.5	2.5	2.5	<u>2.5</u>	<u>2.5</u>
Daily Employee Total (pounds)	39,675	25,600	32,862	39,675	<u>23,138</u>	<u>23,138</u>
Annual Employee Total (tons)	7,241	4,672	5,997	7,241	<u>4,222</u>	<u>4,222</u>
Grand Total (tons)	13,420	10,851	13,382	15,953	<u>11,607</u>	<u>15,315</u>

Notes: New Population and new employees are from Table 3-5 (Project Description)

This table is a reproduction and expansion of Table 4.14-5 in the Draft EIR. Revisions to Table 4.14-5 are shown in ~~strike through~~ and underline.

Residential rate and employee rate are the 2014 CalRecycle solid waste generation rates (pounds per day [PPD]) for Palo Alto.

Annual totals are daily totals (pounds) x 365 days per year divided by 2,000 (pounds per ton).

Palo Alto’s solid waste volume could be increased at one or more of the other landfills that already serve Palo Alto.

CalRecycle’s documentation does not provide separate data for Stanford University or other portions of the SOI. Therefore, for purposes of this analysis, it is assumed that the SOI is also served by the landfills that serve the city. Furthermore, it is assumed that the employee and worker generation rates for the SOI are similar to the rates for the city.

Table 4.14-5 shows that Scenario 6 generates the second greatest solid waste generation increase (15,315 tons per year) over baseline at buildout (after Scenario 4 at 15,953 tons per year), while Scenario 5 generates the second least (11,607 tons per year) at buildout (after Scenario 2 at 10,851 tons per year). The permitted daily throughput capacity and the projected active life of the three main landfills currently accepting solid waste from the city, as discussed above, can accommodate the baseline generation rate, plus the projected increase in solid waste generation within the city and SOI under the six scenarios. Moreover, the baseline generation rate, plus the projected increased generation rates in Table 4.14-5, do not account for all of the ongoing and planned measures to divert increasing amounts of Palo Alto’s solid waste away from landfills.

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Future development in the city will be required to comply with Municipal Code Chapter 16.14, Section A4.408.1, which requires a minimum of 75 percent of non-hazardous construction and demolition (C&D) debris to be recycled or salvaged. Per Section A4.408, development projects are required to prepare a Waste Management Plan for on-site sorting of construction debris, which is submitted to the City for approval, in order to ensure that the covered project meets the diversion requirement for reused or recycled C&D debris.

With continued compliance with applicable regulations listed below, solid waste generated from all six scenarios would not exceed the landfill capacity available to the city and the SOI. Therefore, Scenarios 5 and 6 would be served by a landfill with sufficient permitted capacity to accommodate the proposed Project's solid waste disposal needs, resulting in a *less-than-significant* impact.

Applicable Regulations:

- California Integrated Waste Management Act
- Global Warming Solutions Act of 2006, *Scoping Plan*
- CALGreen Building Code
- *City of Palo Alto Zero Waste Plan*
- City of Palo Alto Municipal Code – Chapter 17.04
- City of Palo Alto Municipal Code – Chapter 5.20
- City of Palo Alto Municipal Code – Chapter 5.24
- City of Palo Alto Municipal Code – Chapter 5.30
- City of Palo Alto Municipal Code – Chapter 5.35
- City of Palo Alto Municipal Code – Chapter 16.14

Significance before Mitigation: Development under Scenarios 5 and 6 would be subject to compliance with federal, State, regional, and local regulations and procedures. Therefore, solid waste generated from Scenarios 5 and 6 would not exceed existing landfill capacity, and this impact would be less than significant.

UTIL-15	Without the adoption of policies to promote recycling and conservation, the proposed Plan could potentially fall out of compliance with federal, State, and local statutes and regulations related to solid waste. (Potentially Significant and Mitigable – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less than significant for Scenario 1; potentially significant and Mitigable for Scenarios 2 through 4. Mitigation Measure UTIL-15 would apply to Scenarios 2 through 4 and would reduce the impact to a less-than-significant level after mitigation.

Summary of Supplemental Analysis: The impact would be potentially significant and mitigatable for Scenarios 5 and 6 and Mitigation Measure UTIL-15 would reduce the impact to a less-than-significant level. Mitigation Measure UTIL-15 has been revised, as shown below. These revisions will also be applied to the

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mitigation for Scenarios 2 through 4. The revisions do not change the original intent or effectiveness of Mitigation Measure UTIL-15.

Mitigation Measure UTIL-15: ~~The following policies and programs, or equally effective language, shall be included in the proposed Plan. To ensure that future development under Scenarios 2, 3, and 4 would comply with applicable solid waste regulations, the proposed Plan shall include policies that address the following topics:~~

- Substantial landfill diversion by 2030, and ultimately zero waste.
- Reduced solid waste generation.
- Use of reusable, returnable, recyclable, and repairable goods.
- Enhanced recycling and composting programs for all waste generators.
- ~~Policy: Reduce the amount of solid waste disposed in the City's landfill by reducing the amount of waste generated and promoting the cost-effective reuse of materials that would otherwise be placed in a landfill.~~
- ~~Policy: Reduce solid waste generation through salvage and reuse of building materials, including architecturally and historically significant materials.~~
- ~~Policy: Encourage the use of reusable, returnable, recyclable, and repairable goods through incentives, educational displays and activities, and through City purchasing policies and practices.~~
- ~~Policy: Increase program participation to maximize recycling and composting from all residents, businesses, and institutions, and consider ways to expand recycling and composting programs.~~

As discussed in the February 2016 Draft EIR (Sections 4.14.4.1 and 4.14.4.2), the City complies with State and local requirements to reduce the volume of solid waste through recycling and reuse of solid waste. The City's per capita disposal rates for residents and employees are below the target rates established by CalRecycle. The City also has established solid waste recycling requirements in its Municipal Code that are more stringent than state requirements.

The existing Comprehensive Plan includes policies that promote recycling and conservation would need to remain in the proposed Plan to ensure adequate waste collection and disposal facilities for the residents and workers of Palo Alto and to minimize solid waste generation for disposal. The removal of any one of these policies could cause the proposed Plan to fall out of compliance with local, State, or federal laws. Because the proposed Plan is still in process and has not yet been decided which policies will be retained as part of the proposed Plan, the impact is *potentially significant* under Scenarios 5 and 6.

Applicable Regulations:

- California Integrated Waste Management Act
- Global Warming Solutions Act of 2006, *Scoping Plan*

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- CALGreen Building Code
- *City of Palo Alto Zero Waste Plan*
- City of Palo Alto Municipal Code – Chapter 17.04
- City of Palo Alto Municipal Code – Chapter 5.20
- City of Palo Alto Municipal Code – Chapter 5.24
- City of Palo Alto Municipal Code – Chapter 5.30
- City of Palo Alto Municipal Code – Chapter 5.35
- City of Palo Alto Municipal Code – Chapter 16.14

Significance before Mitigation: Because the proposed Plan is still in process and it has not yet been decided which policies will be included in the proposed Plan, this impact would be potentially significant under Scenarios 5 and 6, requiring mitigation.

Mitigation Measures

Mitigation Measure UTIL-15 would apply to Scenarios 5 and 6.

Significance after Mitigation: Less than Significant.

UTIL-16	The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to solid waste. (Less than Significant – Scenarios 5 and 6)
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February 2016 Draft EIR Findings: Less-than-significant cumulative impact for Scenarios 1 through 4.

Summary of Supplemental Analysis: The cumulative impact would be less than significant for Scenarios 5 and 6.

As discussed in the February 2016 Draft EIR, this analysis takes into account growth projected by the proposed Plan within Palo Alto and its SOI, in combination with impacts from projected growth in the region served by the landfills that serve Palo Alto and its SOI.

Development allowed by the proposed Plan under Scenarios 5 and 6 would increase the quantity of solid waste for disposal by as much as 15,315 tons per year (under Scenario 6), or as little as 11,607 tons per year (under Scenario 5). The permitted daily throughput capacity and permitted maximum lifetime capacity of the landfills that can and do serve the city and SOI can accommodate solid waste generation rates for baseline (2014) plus incremental increases at buildout (2030) under both planning scenarios.

Although AB 939 established a goal for all California cities to provide at least 15 years of ongoing landfill capacity, growth from other cities in the region may exceed that which was taken into account when

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calculating landfill capacity. Also, because two of the three landfill facilities that take approximately 93 percent of the City's solid waste (in 2013) are expected to close by 2023, Palo Alto or other jurisdictions that use the same facilities may eventually experience insufficient future capacity at a specific landfill to accommodate existing or increased population and employment levels.

However, one of the three main landfills serving the city is estimated to close on or after 2107 (Monterey Peninsula Landfill). In addition, there are 17 landfills that received waste from Palo Alto in 2014. Therefore, if one or more of the main three landfills serving Palo Alto in 2014 were unavailable in the future, it is likely solid waste volume generated in the city or SOI could be increased at one or more of the other landfills that already serve the city and SOI.

Therefore, with continued compliance with the applicable regulations listed below the solid waste related impact of the proposed Plan under Scenarios 5 and 6, in combination with past, present, and reasonably foreseeable development, would be *less than significant*.

Applicable Regulations:

- California Integrated Waste Management Act
- Global Warming Solutions Act of 2006, *Scoping Plan*
- CALGreen Building Code
- *City of Palo Alto Zero Waste Plan*
- City of Palo Alto Municipal Code – Chapter 17.04
- City of Palo Alto Municipal Code – Chapter 520
- City of Palo Alto Municipal Code – Chapter 524
- City of Palo Alto Municipal Code – Chapter 530
- City of Palo Alto Municipal Code – Chapter 535
- City of Palo Alto Municipal Code – Chapter 16.14

Significance before Mitigation: Cumulative projects would be subject to federal, State, regional, and local regulations and procedures associated with landfill capacity and solid waste. Therefore, neither Scenario 5 nor Scenario 6 would contribute to cumulatively significant impacts and the impact would be less than significant.

4.14.5 ENERGY SUPPLY AND EFFICIENCY

This section describes the regulatory framework, existing conditions, and impacts related to electric and natural gas services and infrastructure. The City of Palo Alto provides electricity, natural gas, and fiber optic service.

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4.14.5.1 ENVIRONMENTAL SETTING

No revisions are required to the Regulatory Framework and Existing Conditions information presented in the February 2016 Draft EIR except for the following additional detail regarding energy sources, infrastructure, and distribution at Stanford University (deletions are shown in ~~strike through~~ and additions are underlined). There are no revisions to the remainder of the Existing Conditions section in the February 2016 Draft EIR.

Existing Conditions

Stanford University (within the SOI) purchases electricity from the electric power market for ~~some~~ all of its electric power needs. Power is delivered to the campus through a connection to the local public utility, PG&E. Stanford University's ~~Power Systems group within Utilities Services~~ Energy Operations group within the Department of Sustainability & Energy Management is responsible for the design, operation, maintenance and repair of all Stanford's electrical energy infrastructure, as well as ~~overseeing the management of the Central Energy Facility currently operated by Cardinal COGEN, a subsidiary of General Electric.~~ Stanford's Central Energy Facility produces electrical and thermal energy for the main Stanford campus. Steam Hot water is generated for heating buildings, and chilled water is generated for cooling buildings. Electrical and thermal utilities are delivered through distribution systems operated by the Stanford ~~Utilities Services Department~~ Energy Operations group within the Department of Sustainability & Energy Management.

4.14.5.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant energy impact if it would:

- Result in a substantial increase in natural gas and electrical service demands that would require the new construction of energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities.

4.14.5.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative energy supply and efficiency impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto.

The conclusions below are based on the same analytical approach used in the impact discussions in the February 2016 Draft EIR. The relevant characteristics of Scenarios 5 and 6 are described in detail in Section 3.4 of Chapter 3, Project Description, of this Supplement to the Draft EIR.

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UTIL-17 **The proposed Plan would not result in a substantial increase in natural gas and electrical service demands that would require the new construction of energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities. However, without the adoption of policies in support of energy efficiency and conservation, the proposed Plan would result in a potentially significant impact, requiring mitigation. (Potentially Significant and Mitigable – Scenarios 5 and 6)**

February 2016 Draft EIR Findings: Less than significant for Scenario 1; potentially significant and Mitigable for Scenarios 2 through 4. Mitigation Measure UTIL-17 would apply to Scenarios 2 through 4 and would reduce the impact to a less-than-significant level after mitigation.

Summary of Supplemental Analysis: The impact would be potentially significant and mitigatable for Scenarios 5 and 6 and Mitigation Measure UTIL-17 would reduce the impact to a less-than-significant level. Mitigation Measure UTIL-17 has been revised, as shown below. These revisions will also be applied to the mitigation for Scenarios 2 through 4. The revisions do not change the original intent or effectiveness of Mitigation Measure UTIL-17.

Mitigation Measure UTIL-17: ~~The following policies and programs, or equally effective language, shall be included in the proposed Plan to ensure that future development under Scenarios 2, 3, and 4 would maximize energy efficiency and conservation~~ the proposed Plan shall include policies that address the following topics:

- Maximized conservation and efficient use of energy.
- Continued procurement of carbon-neutral energy.
- Investment in cost-effective energy efficiency and energy conservation programs.
- Provision of public education programs addressing energy conservation and efficiency.
- Use of cost-effective energy conservation measures in City projects and practices.
- Adherence to State and federal energy efficiency standards and policies.
- Consideration of a transition to a carbon-neutral natural gas supply.
- ~~Policy: Optimize energy conservation and efficiency in new and existing residences, businesses, and industries in Palo Alto.~~
- ~~Policy: Maintain Palo Alto's long-term supply of electricity and natural gas while transitioning to renewable energy and energy conservation.~~
- ~~Program: Encourage establishment of public education programs addressing energy conservation and efficiency.~~

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- ~~■ Program: Incorporate cost-effective energy conservation measures into construction, maintenance, and City operation and procurement practices.~~
- ~~■ Program: Incorporate State and federal energy efficiency and renewable energy standards and policies in relevant City codes, regulations, and procedures for both privately-owned and City-owned projects and properties.~~
- ~~■ Program: Evaluate the merits of electrification strategies and implement suitable programs to switch from gasoline/natural gas to electricity to achieve deep carbon emission reduction.~~

The proposed Plan would substantially affect energy supply and conservation if it would allow development that would result in a substantial increase in natural gas and electrical service demands that would require the new construction of energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities. New buildings and additions in California are subject to compliance with the energy efficiency standards of Title 24 of the California State Building Code. Chapter 16.17 of the Palo Alto Municipal Code adopts and amends the 2013 California Energy Code, Title 24, Part 6. The technical implications include more stringent requirements in the following areas: 1) a new energy “reach code” requiring building design to exceed the minimum State energy code requirements by 15 percent; and 2) solar-ready infrastructure for new residential buildings.

Electrical Service

Table 4.14-9 below was derived with input from the Palo Alto Utility regarding electricity demand, as illustrated in the Inputs sheet in Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, of this EIR. The table shows that the increase in electricity use would be 1,119,599,956 kWh under Scenario 5 and 1,133,054,918 kWh under Scenario 6. These electricity demand increases correspond to 10 percent (Scenario 5) and 11 percent (Scenario 6) increases at buildout (2030) over baseline (2014).

Implementation of Scenarios 5 and 6 of the proposed Plan at buildout (2030) would result in a long-term increase in electrical service energy demand ranging from 10 percent to 11 percent over 2014 baseline levels within the CPAU’s service territory for electrical service. The average incremental increase in electrical service demand would be less than a 1 percent increase per year. A significant portion of this increase can be offset by anticipated electrical energy efficiency in future years.

CPAU’s first *Ten-Year Energy Efficiency Portfolio Plan* in April 2007 included annual electric and gas efficiency targets between 2008 and 2017, with a 10-year cumulative savings target of 3.5 percent of the forecasted energy use. As mandated by California law, the electric efficiency targets were updated in 2010, with the 10-year cumulative savings goal doubling to 7.2 percent between 2011 and 2020. Since then, increasingly stringent statewide building codes and appliance standards have resulted in substantial energy savings (e.g., as of January 1, 2013, incandescent bulbs between 40W to 100W can no longer be sold). However, these “codes and standards” energy savings cannot be counted toward meeting CPAU’s EE program goals. An

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TABLE 4.14-9 ELECTRICITY USE FOR PROPOSED PLAN – ~~FOUR SIX~~ SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)	Scenario 5 (2030)	Scenario 6 (2030)
Residential Electricity (kWh)	181,244,642	202,509,510	202,509,510	207,058,439	211,826,592	<u>207,058,439</u>	<u>220,513,401</u>
Commercial + Industrial + City + Other Electricity (kWh)	835,822,875	967,376,074	920,706,602	944,787,386	967,376,074	<u>912,541,517</u>	<u>912,541,517</u>
Total Electricity (kWh)	1,017,067,516	1,169,885,584	1,123,216,113	1,151,845,825	1,179,202,666	<u>1,119,599,956</u>	<u>1,133,054,918</u>
Change from 2014 (kWh)		152,818,068	106,148,597	134,778,309	162,135,150	<u>102,532,440</u>	<u>115,987,402</u>

Notes: This table is a reproduction and expansion of Table 4.14-9 in the Draft EIR. Revisions to Table 4.14-9 are shown in ~~strike through~~ and underline. Residential electricity provided by Palo Alto (2014). Scenarios (2030) projected based on increase in housing units. Baseline (2014) based on a four-year average of 2011 to 2014 data. Commercial + Industrial provided by Palo Alto (2014). Scenarios (2030) projected based on increase in employment. Baseline (2014) based on a four-year average of 2011 to 2014 data. Source: PlaceWorks, ~~2015~~ 2016.

updated set of Ten-Year Electric Efficiency Goals, adopted by City Council in December 2012, revised the 10-year cumulative electric efficiency savings to 4.8 percent between 2014 and 2023.

The EIR Study Area is predominantly located within the CPAU service territory for electrical service transmission and distribution. A key exception is that Stanford University operates its own electric power utility for the campus (within the Study Area). Forecasting and planning by the CPAU will be able to accommodate and serve the Plan’s expected net annual average increase in electrical service demand of less than 1 percent (after EE goals and standards and codes). Therefore, Scenarios 5 and 6 would not significantly increase electrical demands within the service territory to an extent that would require new local electrical supply facilities. Where new generation, transmission, and/or distribution infrastructure is required to serve the CPAU service territory in general, these projects would be subject to separate environmental review and would be required to comply with applicable regulations for construction projects, including construction permits/review for construction within public rights-of-way (e.g., grading permits, private development review, encroachment permits, etc.).

Natural Gas

Table 4.14-10 was derived with input from CPAU regarding natural gas demand, as illustrated by the Inputs sheet in Appendix C, Air Quality and Greenhouse Gas Emissions Modeling. The table shows that buildout of the Plan in the city and SOI under Scenarios 5 and 6 would result in an increase of natural gas use increase ranging from 3,544,370 million therms (Scenario 5) to 4,470,891 million therms (Scenario 6). These gas

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TABLE 4.14-10 NATURAL GAS USE FOR PROPOSED PLAN – ~~FOUR~~ SIX SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)	<u>Scenario 5 (2030)</u>	<u>Scenario 6 (2030)</u>
Residential Natural Gas (therms)	12,480,681	13,945,000	13,945,000	14,258,243	14,586,583	<u>14,258,243</u>	<u>15,184,765</u>
Commercial + Industrial + City + Other Natural Gas (therms)	19,248,740	22,278,369	21,203,586	21,758,159	22,278,369	<u>21,015,546</u>	<u>21,015,546</u>
Total Natural Gas (therms)	31,729,420	36,223,369	35,148,585	36,016,402	36,864,952	<u>35,273,790</u>	<u>36,200,311</u>
Change from 2014 (therms)		4,493,949	3,419,165	4,286,982	5,135,532	<u>3,544,370</u>	<u>4,470,891</u>

Notes: This table is a reproduction and expansion of Table 4.14-10 in the Draft EIR. Revisions to Table 4.14-10 are shown in ~~strike through~~ and underline. Residential gas provided by Palo Alto (2014). Scenarios (2030) projected based on increase in housing units. Baseline (2014) based on a four-year average of 2011 to 2014 data.

Commercial + Industrial gas provided by Palo Alto (2014). Scenarios (2030) projected based on increase in employment. Baseline (2014) based on a four-year average of 2011 to 2014 data.

Source: PlaceWorks, 2015.

demand increases correspond to 11 percent (Scenario 5) and 14 percent (Scenario 6) increases at buildout (2030) over baseline (2014).

At buildout (2030), implementation of Scenarios 5 and 6 of the proposed Plan would result in a long-term increase in natural gas demand ranging from 11 percent to 14 percent over 2014 baseline levels within the CPAU’s service territory for gas service. The average incremental increase in gas demand would be approximately 1 percent per year. A significant portion of this increase can be offset by anticipated gas energy efficiency in future years. The Ten-Year Gas Efficiency Goals for the CPAU, adopted by City Council in December 2012, identified cumulative gas efficiency savings of 2.85 percent between 2014 and 2023—excluding savings due to “codes and standards.” Increasingly stringent statewide building codes and appliance standards have resulted in substantial energy savings.

The Plan would be within the 70,000-square-mile PG&E service territory for natural gas transmission and distribution. Due to the EIR Study Area’s size and location within an urban area, development allowed by the six scenarios would not significantly increase natural gas demands within the PG&E service territory and would not require new gas supply facilities. Where new transmission/distribution infrastructure is required, these projects would be subject to separate environmental review and would be required to comply with applicable regulations for construction projects, including construction permits/review for construction within public rights-of-way (e.g., grading permits, private development review, encroachment permits, etc.).

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Transportation Energy

All six scenarios would consume transportation energy during construction and operational activities from the use of motor vehicles. Because the details of the motor vehicles that would be used, such as the average miles per gallon, are unknown, it would be speculative to estimate the precise transportation energy use. The quantity of transportation energy use would be based on vehicle miles traveled (VMT) and fuel efficiency of motor vehicles used in the EIR Study Area. (See Chapter 4.13, Transportation and Traffic, for VMT estimates for the six scenarios.) Over the course of the Plan horizon, average fuel consumption would be anticipated to decrease as a result of State and federal laws, including the Pavley Advanced Clean Cars program, as well as vehicle turn over, that improves the overall fuel economy of California's vehicle fleets. The increased use of electric vehicles that is anticipated over the horizon of the proposed Plan would also involve an increase in electricity usage.

Palo Alto and its surrounding area are highly urbanized with numerous gasoline fuel facilities and infrastructure. Consequently, the proposed Plan scenarios would not result in a substantial demand for energy that would require expanded supplies or the construction of other infrastructure or expansion of existing facilities.

Conservation

New development allowed under Scenarios 5 and 6 would be constructed using energy efficient modern building materials and construction practices, in accordance with California Building Standards Code (Title 24 CCR, Parts 6 and 11), and the Chapters 16.14 and 16.17 of the City's Municipal Code, which contain the Green Building Ordinance and Energy Code, respectively. New buildings also would use new modern appliances and equipment, in accordance with the 2012 Appliance Efficiency Regulations (Title 20 CCR, Sections 1601 through 1608). Under these requirements, future development allowed by the proposed Plan would use recycled construction materials, environmentally sustainable building materials, building designs that reduce the amount of energy used in building heating and cooling systems as compared to conventionally built structures, and landscaping that incorporates water efficient irrigation systems, all of which would conserve energy.

Scenarios 5 and 6 inherently further objectives of energy conservation by focusing future growth in portions of the EIR Study Area containing existing infrastructure and services.

Energy supply planning in accordance with the City's *Long-term Electric Acquisition Plan* (LEAP) and *Gas Utility Long-term Plan* (GULP) would serve to ensure adequate energy supplies for development under the Plan. Energy efficiency under the Plan would be subject to the California Energy Efficiency Regulations (SB 1037, 2005) as applicable to CPAU.

The existing Comprehensive Plan contains numerous policies intended to ensure energy conservation is practiced in Palo Alto. These policies would need to remain in the proposed Plan to ensure that future development and redevelopment maximizes energy conservation and efficiency. Because the proposed Plan

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is still in process and it has not yet been decided which policies will be retained as part of the proposed Plan, the impact is *potentially significant* under Scenarios 5 and 6, requiring mitigation.

As described in the February 2016 Draft EIR (Section 4.14.1.1, Climate Change), sea levels along the San Francisco Bay are expected to rise up to 69 inches due to climate change.²⁰ The City's utility control center, municipal services center, and natural gas station 4 are critical facilities at risk to sea level rise. Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. The impacts associated with sea level rise are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change, of this Supplement to the Draft EIR.

Applicable Regulations:

- National Energy Policy Act of 2005
- California 2012 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608)
- California Global Warming Solutions Act of 2006, *Scoping Plan*
- California Renewable Portfolio Standard
- California's Energy Efficiency Regulations (SB 1037, 2005)
- California Energy Benchmarking and Disclosure (AB 1103, 2007)
- California Energy Code (Title 24, Part 6)
- CALGreen Building Code (Title 24, Part 11)
- City of Palo Alto Municipal Code: Chapter 1614, Green Building Standards Code Adopted and Amended; Chapter 1617, California Energy Code Adopted and Amended; Chapter 1220, Utility Rules and Regulations
- City of Palo Alto *Carbon Neutral Electric Resource Plan*
- City of Palo Alto *Renewable Portfolio Standard and Local Solar Plan*
- City of Palo Alto *Long Term Electricity Acquisition Plan*

Significance before Mitigation: Under Scenarios 5 and 6, policies would be needed to ensure energy conservation is practiced in Palo Alto and this impact would be potentially significant, requiring mitigation.

Mitigation Measures

Mitigation Measure UTIL-17 would apply to Scenarios 5 and 6.

Significance after Mitigation: Less than Significant.

²⁰ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*.

UTILITIES AND SERVICE SYSTEMS

4.14.5.4 CUMULATIVE IMPACTS

The discussion under Impact UTIL-17 described the proposed Plan's impacts in relationship to the CPAU service territory for electricity and the PG&E service territory for natural gas and therefore includes a discussion of cumulative impacts.

UTILITIES AND SERVICE SYSTEMS