4.15 UTILITIES

This section describes the existing and planned utilities and service systems serving the plan area, including water, wastewater, and solid waste services. The evaluation of impacts to utilities and service systems from adopting the New General Plan focuses on potential demand increases to these systems and any resultant needs for new or expanded facilities. Mitigation measures are identified for any significant impact.

For a discussion of issues and impacts related to stormwater infrastructure, please see Section 4.8, Hydrology.

Information in this section was obtained from the review of numerous plans, studies, and other publications from pertinent utility and service system providers serving the plan area and/or Redwood City. These include the most recent (2005) Urban Water Management Plan (which is incorporated by reference), studies and reports related to the San Francisco Public Utilities Commission’s Water System Improvement Program, general wastewater system information from the City of Redwood City Public Works Services (PWS) and Building, Infrastructure and Transportation (BIT) departments, the South Bayside System Authority, as well as other studies and reports and personal communications with service providers.

4.15.1 ENVIRONMENTAL SETTING

Water Supply

Redwood City’s potable municipal water supply is provided by the Hetch Hetchy regional water system operated by the San Francisco Public Utilities Commission (SFPUC). Redwood City’s recycled water system provides non-potable water supply. Local groundwater is not used by the City as a source of municipal supply, but there are a limited number of private well owners who use groundwater primarily for irrigation purposes. Table 4.15-1 shows existing and anticipated future water supplies by source, as per the City’s 2005 Urban Water Management Plan (UWMP).1

The 2005 UWMP assumed a relatively steady amount of water purchases from the SFPUC through 2030. This is generally consistent with anticipated future water availability from SFPUC. Table 4-15.1 also shows that increasing amounts of recycled water would be available for non-potable uses by 2030. The UWMP assumes no contribution to the plan area’s municipal water supply from groundwater, desalination, or transfers/exchanges.

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1 As of April 2010, the City anticipates completing an updated UWMP in 2011 in accordance with State law.
Table 4–15.1 Current and Planned Water Supplies in acre–feet per year (afy)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipated SFPUC Potable Water Purchases**</td>
<td>12,768</td>
<td>12,096</td>
<td>12,544</td>
<td>12,768</td>
<td>12,880</td>
<td>12,992</td>
</tr>
<tr>
<td>Redwood City Recycled Water</td>
<td>30</td>
<td>922</td>
<td>1,178</td>
<td>1,398</td>
<td>1,695</td>
<td>1,995</td>
</tr>
<tr>
<td>Transfers/Exchanges In or Out</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Desalination</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Redwood City Groundwater*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>12,798</td>
<td>13,018</td>
<td>13,722</td>
<td>14,166</td>
<td>14,575</td>
<td>14,987</td>
</tr>
</tbody>
</table>

* Defined as municipal potable source only. Does not include existing or future private wells.
** SFPUC Potable Water Purchases represent Redwood City's “best estimate” of water demand provided to SFPUC in its preparation of the WSIP. It is acknowledged that Redwood City's supply assurance is currently 12,243 afy.
Source: Table 3-1, Redwood City 2005 Urban Water Management Plan (UWMP).

SFPUC Water

The SFPUC is a City and County of San Francisco department that provides water, wastewater, and municipal power services to San Francisco. As the third largest municipal utility within California, the SFPUC also has wholesale water customers across 28 suburban agencies within San Mateo, Santa Clara, and Alameda counties. These agency customers comprise two-thirds of SFPUC’s total water deliveries.2 SFPUC provides water used by about 2.4 million residential, commercial, and industrial customers within the City and County of San Francisco and another 1.6 million within the three counties.3 The SFPUC delivers about 260 million gallons per day (mgd) to all water customers within its system.4

About 85 percent of the water delivered by the SFPUC is derived from Sierra Nevada snowpack runoff, delivered through the Hetch Hetchy watershed located in Yosemite National Park. About 15 percent of SFPUC’s water is sourced from reservoirs in the East Bay and on the San Francisco Peninsula (the Calaveras Reservoir in Santa Clara County, the San Antonio Reservoir in Alameda County, and the Pilarcitos, Crystal Springs, and San Andreas Reservoirs in San Mateo County). These reservoirs capture water from their respective local watersheds and also are used to store water from the Hetch Hetchy system. About one percent of SFPUC’s water supply is extracted from groundwater sources near the community of Sunol in southern Alameda County. During drought years,

Hetch Hetchy water can comprise over 93 percent of the total water distributed by the SFPUC.\(^5\)

The SFPUC is currently undertaking a Water System Improvement Program (WSIP) to ensure the long-term viability of the agency’s ability to provide water to its customers. The WSIP includes at least 37 capital improvement projects spanning all elements of SFPUC’s water production and delivery system, plus related efforts that serve as mitigation for WSIP project impacts. The SFPUC and the City and County of San Francisco Planning Commission gave final approval to the WSIP on October 30, 2008 and certified an associated Program EIR.

The WSIP has been designed to meet the future water supply demands of SFPUC’s customers through the year 2018 and includes provisions that foster greater use of water recycling, groundwater development, and water conservation throughout the SFPUC service area. The Final Program EIR (FPEIR) prepared for the WSIP identifies alternatives that could meet the SFPUC service area’s projected increase in water demand through the year 2030. As the 2018 mid-term planning milestone approaches, SFPUC would re-evaluate system-wide water demands in the context of then current information.\(^6\) As a member of BAWSCA, Redwood City will be a participant in re-evaluating future water demands. At a system-wide level, SFPUC projects that the projected water demand of all of its retail and wholesale customers will increase from an annual average of 265 million gallons per day (mgd) in the year 2005 to 300 mgd by the year 2030.\(^7\)

The FPEIR evaluated a “Phased WSIP Variant” which was the project approved by the SFPUC. Under this variant, SFPUC would provide its customers with 265 mgd of potable water through 2018. The variant then requires the SFPUC and wholesale customers (including Redwood City) to collectively develop 20 mgd of additional water supply resources through recycled water projects, groundwater development, and conservation measures.

As shown in Table 4.15-1, the Redwood City 2005 UWMP assumes that SFPUC water deliveries to the plan area would remain relatively stable through the year 2030, while supplies of recycled water are projected to increase substantially.

The business relationship between the City and County of San Francisco and the SFPUC customers was originally defined by the Settlement Agreement and Master Water Sales Contract (Master Contract), signed by the SFPUC, Redwood City and 29 other Bay Area water customers of SFPUC in 1984. This Master Contract was created by the SFPUC to address issues that dealt with wholesale water rates for its wholesale customers, along with addressing water shortage and water needs for the regional water system. This


\(^7\) Final Programmatic EIR, SFPUC Water System Improvement Program, October 2008.
contract had a life span of 25 years and was set to expire on June 30, 2009. Between September 2006 and spring 2009, a new Water Supply Agreement (WSA) was negotiated between the Bay Area Water Supply and Conservation Agency (BAWSCA, which represents the wholesale customers of the SFPUC in the Bay Area). The SFPUC approved the Agreement in April 2009, and the Redwood City Council adopted it in June 2009. The new Agreement is intended to serve for another 25 years, through the year 2034, with provisions for two 5-year extensions. The key terms of the agreement include:

- Reconfirmation of the member agencies’ collective supply assurance of 184 million gallons per day (mgd) as well as the agencies individual “supply guarantees.” Supply guarantees would be transferable between BAWCSA member agencies.
- Agreement that San Francisco will deliver water complying with all applicable drinking water standards.
- Agreement that San Francisco will complete the WSIP by 2015.
- Agreement by San Francisco to address the currently in place Interim Supply Limitation, which is in effect through December 2018. The SFPUC currently has not projected water supply availability beyond December 2018. The BAWSCA members are currently working on updating the Interim Supply Limitation allocations among the wholesale customers.

The wholesale customers also agreed to the allocation of 184 mgd of water supply between them known as the Supply Assurance. This Supply Assurance outlasts the lifespan of the Water Supply Agreement as it has no expiration date. The City’s individual contracted Supply Assurance is 10.93 mgd or 12,243 acre-feet per year (afy).

Table 4-15-2 summarizes City water purchases from San Francisco over the last decade relative to the Supply Assurance. As shown in the table, for most of the past decade, the SFPUC has made available and the City has purchased water above the Supply Assurance. In the six years between 1999 and 2005, Redwood City consumed an average of about 800-900 afy over its Supply Assurance as shown in Table 4.15-2. Annual seasonal variations were the cause for the fluctuations per fiscal year. These fluctuations are influenced by numerous factors, including weather, commercial building occupancy, and implementation of increasingly active water conservation measures. Periods of extremely hot weather were the cause for the large potable water supply deficit in the 2003/2004 fiscal year. In the following two years, unusually cool and wet winter/spring seasons accounted for lower total water purchases. In 2008/2009, total purchases were approximately 650 afy below the Supply Assurance. This reduction in demand can be attributed to several factors, including the City’s aggressive water conservation programs,

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10 Personal communication, Justin Ezell, City of Redwood City Public Works Services.
replacing potable water use with recycled water use, and the effects of the national economic downturn resulting in less local business activity and greater real estate vacancies.

Table 4.15–2 Redwood City Potable Water Purchase History (afy)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Potable Water Purchase In Excess of Supply Assurance (afy)(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999/2000</td>
<td>1,028</td>
</tr>
<tr>
<td>2000/2001</td>
<td>950</td>
</tr>
<tr>
<td>2001/2002</td>
<td>794</td>
</tr>
<tr>
<td>2002/2003</td>
<td>524</td>
</tr>
<tr>
<td>2003/2004</td>
<td>1,410</td>
</tr>
<tr>
<td>2004/2005</td>
<td>207</td>
</tr>
<tr>
<td>2005/2006</td>
<td>(55)(b)</td>
</tr>
<tr>
<td>2006/2007</td>
<td>829</td>
</tr>
<tr>
<td>2007/2008</td>
<td>93</td>
</tr>
<tr>
<td>2008/2009</td>
<td>(650)(b)</td>
</tr>
</tbody>
</table>

(a) Based on the SFPUC Supply Assurance of 12,243 afy from the Hetch Hetchy regional water system
Source: City of Redwood City, 2010.
(b) In 2005/2006 and in 2008/2009, the City purchased less than its Supply Assurance.

BAWSCA was created by SB 1870 in May 2003 to represent the interests of 26 cities and water districts, and two private utilities across San Mateo, Alameda, and Santa Clara counties who are wholesale customers of the SFPUC. Redwood City is a member of BAWSCA. BAWSCA works with the SFPUC on an equal basis to ensure the water system functions properly, and to collectively and efficiently meet local responsibilities. While BAWSCA does not provide any agency a direct voice in SFPUC’s decisions, it enables Redwood City, with BAWSCA colleagues and staff, to collectively address community and regional needs.

A physical component of the WSIP that will be located partially within Redwood City is the new Bay Division Pipeline No. 5 (BDPL 5). BDPL 5 is one of the largest WSIP projects. BDPL 5 involves construction of a new pipeline along the alignment of the existing Bay Division Pipelines Nos. 1 and 2, which cross San Francisco Bay in a tunnel between Newark and Menlo Park. BDPL Nos. 1 and No. 2 travel across Redwood City from southeast to northwest within a right-of-way primarily owned by the SFPUC; in some areas the pipeline is located within easements obtained by SFPUC. Along the north side of Edgewood Road, the pipelines are visible on open structures as they deliver water to the Crystal Springs Reservoir via the Pulgas Tunnel Portal in San Mateo County.

Overall, the BDPL 5 project involves construction of a new pipeline from Irvington Tunnel Portal in Fremont to Pulgas Tunnel Portal near Redwood City, consisting of 16 miles of new pipeline and 5 miles of tunnel under San Francisco Bay. Portions of the section of BDPL No. 1 between Edgewood Valve Lot and Pulgas Valve Lot would be removed.
(approximately 1.4 miles), and existing above ground and submarine sections of BDPL Nos. 1 and 2 over the five-mile-long section from Newark Valve House to Ravenswood Valve House would be decommissioned. BDPL 5 will be built parallel to the existing BDPL Nos. 1 and 2. BDPL 5 would be seismically designed to withstand a major earthquake and would allow SFPUC to take the existing, older BDPL pipelines out of service for maintenance and repairs. The SFPUC approved the BDPL5 project in 2009, certifying an accompanying project EIR. The SFPUC and the City have entered into an agreement regarding the construction work for this project within the City limits.

**Recycled Water**

Recycled water in the plan area is produced at the South Bayside System Authority’s (SBSA) sub-regional wastewater treatment plant on Radio Road in the Redwood Shores area of Redwood City. The SBSA operates under a joint powers authority with four member agencies comprised of the cities of Redwood City, Belmont, and San Carlos, and the West Bay Sanitary District, which serves Menlo Park, Atherton, Portola Valley, and parts of East Palo Alto and unincorporated San Mateo County. The City of Redwood City owns 53.7 percent of the treatment plant.11

The recycled water treatment and storage facility is located at the SBSA wastewater treatment plant. The plant treats wastewater to California Title 22 criteria for “unrestricted use” and operates under permits issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB) and the California Department of Public Health (CDPH). Construction of the recycled water pipeline distribution system within the recycled water system’s Phase 1 area was completed in February 2010. The Phase 1 system includes customers and pipelines in the Redwood Shores and Greater Bayfront area, including the Port of Redwood City. The City’s Recycled Water Use Ordinance, adopted in 2008 (Chapter 38, Article VIII of the Redwood City Code), requires the use of recycled water for certain existing and new developments; for example, dust control activities or external landscaping and approved internal uses in new commercial and residential development. The ordinance also includes voluntary uses of recycled water inside and outside of the service area.

Table 4.15-3 shows the projected amount of wastewater that would be collected, treated and discharged and/or reused in the SBSA service area between 2005 and 2030 based on the City’s 2005 UWMP. As shown, the amount of recycled water produced and used in Redwood City is anticipated to increase to approximately 2,000 afy by the year 2030.

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Table 4.15–3 Wastewater Collected, Treated, and Discharged in Redwood City (afy)

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater collected and treated in SBSA service area</td>
<td>19,300</td>
<td>22,300</td>
<td>24,800</td>
<td>27,300</td>
<td>29,900</td>
<td>32,500</td>
</tr>
<tr>
<td>Quantity treated to recycled water &quot;unrestricted&quot; use standard</td>
<td>30</td>
<td>922</td>
<td>1,178</td>
<td>1,398</td>
<td>1,695</td>
<td>1,995</td>
</tr>
<tr>
<td>Quantity treated to recycled water &quot;restricted use&quot; standard</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Percent discharged</td>
<td>99.5%</td>
<td>95.6%</td>
<td>95.0%</td>
<td>94.6%</td>
<td>94.1%</td>
<td>93.6%</td>
</tr>
<tr>
<td>Percent reused</td>
<td>0.5%</td>
<td>4.4%</td>
<td>5.0%</td>
<td>5.4%</td>
<td>5.9%</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

Source Redwood City 2005 UWMP.

Table 4.15–4 shows projections for the future demand for recycled water in the plan area, including expansion into the Central plan area, based on the City’s 2005 UWMP. Recycled water is anticipated to be used largely in commercial and institutional landscaping; up to about 400 afy are anticipated to be used in residential landscaping. The use of recycled water in residential landscaping presumes the future development of appropriate delivery systems to residential areas, consistent with provisions set forth in the Recycled Water Use Ordinance.

Table 4.15–4 Projected Recycled Water Demand in Redwood City (afy)

<table>
<thead>
<tr>
<th>Type of Use</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;First Step&quot; Project Customers</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Landscape Irrigation – Commercial/City</td>
<td>0</td>
<td>766</td>
<td>766</td>
<td>766</td>
<td>766</td>
<td>766</td>
</tr>
<tr>
<td>Landscape Irrigation – Residential</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>180</td>
<td>247</td>
<td>397</td>
</tr>
<tr>
<td>Industrial Uses</td>
<td>0</td>
<td>97</td>
<td>133</td>
<td>133</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>Cooling</td>
<td>0</td>
<td>29</td>
<td>69</td>
<td>69</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>Other (new development)</td>
<td>0</td>
<td>0</td>
<td>80</td>
<td>220</td>
<td>450</td>
<td>600</td>
</tr>
<tr>
<td>TOTAL – Redwood City Delivery</td>
<td>30</td>
<td>922</td>
<td>1,178</td>
<td>1,398</td>
<td>1,695</td>
<td>1,995</td>
</tr>
</tbody>
</table>

SBSA landscape impoundment

Source: Redwood City 2005 UWMP.

Transfers/Exchanges

According to the City’s 2005 UWMP, securing water from willing sellers inside and outside of SFPUC’s Hetch Hetchy water system is theoretically possible. However, the 2005 UWMP did not anticipate any supplementation of the City’s water supply through this manner, as discussed below.
Within the SFPUC system, transfer of water entitlements and/or “banked” water among contracting agencies during drought periods can occur when rationing is in effect. The new Water Supply Agreement, adopted by SFPUC and its wholesale customers in June 2009, provides for voluntary transfers of water among wholesale customers during periods when mandatory rationing is in effect on the San Francisco regional water system. Some wholesale customers have the capacity to draw more heavily on local groundwater or other surface water supplies during dry years and thus may be willing to agree to transfer some portion of their San Francisco entitlement to other customers willing to pay for this back up supply. This is a potential source of relief from rationing at levels more severe than those required in neighboring communities. It is not possible to rely on this potential source unless and until contracts are signed with one or more other wholesale customers.

Redwood City does not use groundwater or surface water as a source of local potable supply, as further discussed below.

**Groundwater**

Groundwater is not a contributor to overall municipal water supply in the plan area. Historically, groundwater has not been a source of municipal water supply due to water quality, reliability, and long-term production capacity concerns.

A technical report prepared for the City of Redwood City in 2003 concluded that local aquifers are marginal in terms of sources of municipal supply, but may be adequate to provide small amounts of supplemental water to individual users with wells and extraction systems. The report found that a network of wells could sustainably produce between 500 and 1,000 afy of potable water, given local groundwater recharge rates. The report further noted that if groundwater were to be used for drinking purposes, treatment and blending procedures would be needed to improve the aesthetic appearance and quality of groundwater.

The technical report concluded that current groundwater use in the plan area was minimal. Groundwater production and use in plan area was limited to individual wells on private and institutional properties. Sequoia High School uses groundwater for landscape irrigation, saving an estimated 27 afy of potable water by using this water source. The Pacific Shores development in the Seaport area also uses groundwater for landscape irrigation. However, the existing and projected municipal water supply shown in Table 4.15-1 assumes no contributions from groundwater.

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Water Distribution Infrastructure

Potable Water

The City’s water service area covers approximately 14 square miles and serves the City of Redwood City, portions of the sphere of influence area including Emerald Lake Hills and a portion of North Fair Oaks, and Cañada College (which is located on both sides of the border of Redwood City and the Town of Woodside). Elevations within the service area range from about mean sea level along Seaport Boulevard near the Bay to over 800 feet in the Emerald Lake Hills area. There are approximately 17 pressure zones that comprise its total service area, which keep water pressure at an appropriate level. Since pressures tend to decrease as water is delivered from source to user, regulatory valves and other devices within pressure zones ensure that pressures are adequate for users, as well as for fire hydrants, which typically require higher pressures than are needed for residential or commercial use.

The Redwood City water system receives potable water from the SFPUC system through 13 metered connections to four SFPUC pipelines. The system also includes 10 interties or connections with adjacent water systems that can be utilized to provide continuity of water service in case of emergency. The water distribution system consists of 265 miles of distribution mains, 12 storage reservoirs (with a total 21-million-gallon capacity), 10 pump stations, 2,385 fire hydrants, and 26 pressure reducing valve (PRV) stations between two and six inches in diameter. Four of the pump stations have permanent standby generators; the system also has two portable generators for emergency use. The water distribution system is complex and consists of many pipe sizes and materials, with some pipes more than 100 years old. The City’s annual Water System Capital Improvement Program (CIP) intends to replace older pipes with PVC pipes of appropriate size, utilizing anticipated increases in future CIP funding. The City is currently in the process of preparing a Water Master Plan to address ongoing and future needs for water system improvements.

According to the 2005 UWMP, the water system is adequate to meet maximum day water demands as long as the SFPUC pipelines are in service. In the event of a loss of the SFPUC supply, the water system would be able to supply all but four of the 17 pressure zones in the system for an extended period. Those four pressure zones (“Altamont,” “Fernside North,” “Fernside South,” and “Cordilleras”) are not currently connected to other pressure zones and do not include any water storage facilities. In order to provide water to those four zones when the SFPUC supply is not available, these four zones have been connected to storage tanks that normally supply the “Main” pressure zone. Additional storage facilities may be added to serve remote service areas, such as the Seaport and Friendly Acres pressure zones, which are susceptible to low service pressures during prolonged interruptions.

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15 The interties connect the City’s water system to the water systems of the California Water Service Company, the Belmont County Water District, and the City of Menlo Park. Source: City of Redwood City, 2005 Urban Water Management Plan.
Recycled Water

The City’s recycled water treatment facilities are located at the SBSA treatment plant. The facilities include water disinfection facilities, two 2-million gallon storage reservoirs, and a pump station. The first phase of the recycled water pipeline distribution system was completed in early 2010 and is in service as of April 2010. This portion of the distribution system consists of 15 miles of pipeline placed within the Phase 1 area of the City’s recycled water service area. Figure 4.15-1 depicts the City’s entire recycled water service area that was adopted with the Recycled Water Use Ordinance in 2008.

Wastewater Collection and Treatment

Wastewater treatment for Redwood City is provided by the South Bayside System Authority (SBSA) treatment plant, located at the northeastern end of the Redwood Shores peninsula. SBSA operates under a joint powers authority (JPA) with four member agencies: the cities of Redwood City, Belmont, and San Carlos, and the West Bay Sanitary District (serving Menlo Park, Atherton, Portola Valley, and parts of East Palo Alto and San Mateo County). The JPA entities own the SBSA. SBSA is responsible for the operation of four pump stations, the force main, and the wastewater treatment plant.

The Redwood City Public Works Services Department is responsible for operation and maintenance of the sanitary sewer collection system serving Redwood City. The system consists of approximately 192 miles of sewer mains, along with 31 sewer lift stations (26 in Redwood Shores and 5 in the Bayfront area). Improvements to the wastewater collection pipelines are ongoing, with continual updates and replacements to the existing system.16

Redwood City has agreements with San Mateo County sewer districts in adjacent unincorporated areas to collect and convey wastewater for treatment. These districts include the Emerald Lake Heights, Fair Oaks, Kensington Square, Oak Knoll and Edgewood Sewer Districts. The wastewater contributions of these districts are considered part of the City’s total inflows to the SBSA treatment plant. Redwood City also has an agreement with the Town of Woodside to convey some of its wastewater.

The Redwood City wastewater collection system operates primarily via gravity flow. Sewage flows from the western portion of the City’s collection system are conveyed to the Maple Street Pump Station located on the east side of U.S. 101 near Maple Street. In the Redwood Shores area of the City, the wastewater collection system conveys flow directly to the SBSA treatment plant via pump stations, gravity pipelines and force mains.

The Maple Street pump station conveys wastewater via a force main to the SBSA treatment plant located at the eastern end of Redwood Shores. As noted above, the force main pipeline and treatment plant are owned and operated by SBSA.

This figure is intended to be used with City of Redwood City Ordinance # 2335 regarding the use of Recycled Water Use Ordinance.
The SBSA plant treats wastewater through filtration at an advanced two-stage biological treatment facility. The physical treatment process consists of the sewage being sifted through a primary sedimentation tank to remove all solids, grease, and scum. The biological treatment process uses living bacteria to remove or “digest” organic material from the sewage. These two processes remove 97 percent of all solids, organic material, and pathogens from the wastewater before its release into the Bay through a submarine diffuser located roughly 2 miles south of the San Mateo Bridge.17

Wastewater flows are defined as average dry weather flow (ADWF) and peak wet weather flow (PWWF). ADWF is the average flow that occurs on a daily basis with no evident reaction to rainfall. PWWF is the highest measured hourly flow that occurs during wet weather. Wastewater flows can vary with precipitation levels, insofar as rainwater can enter the wastewater collection system through infiltration and inflow (I/I) during significant rain events.

The SBSA treatment plant has an operating capacity of 29 mgd average dry weather flow (ADWF). The plant is permitted by the RWQCB to discharge 29 mgd ADWF into San Francisco Bay. The current permitted peak wet weather capacity of the SBSA facility is 71 mgd.18

The SBSA member agencies purchased flow capacity when the treatment plant was built and became operational in the early 1980s. This phase was called Stage 1 and had an ADWF capacity of 24 mgd. In mid-1995, SBSA initiated actions to expand the ADWF capacity of the treatment plant to 29 mgd. The expansion phase is called Stage 2. Redwood City’s ADWF capacity allocation is 11.4 mgd from Stage 1 and 2.375 mgd from Stage 2, for a total ADWF capacity allocation of 13.775 mgd. As of April 2010, the City had purchased about 12.3 mgd of its total ADWF allocation. Between 1995 and 2006, Redwood City’s total average annual dry weather inflows to the SBSA ranged from 7.5 to 9 mgd. During the summer of 2008, the average dry weather flow from Redwood City was about 7.3 mgd. All of these figures are well below the City’s purchased ADWF capacity.19

Redwood City’s peak wet weather allocation at the treatment plant is approximately 30.5 mgd (25.9 mgd for the central portion of the City and 4.6 mgd for Redwood Shores). According to the SBSA, Redwood City’s highest hourly wet weather flow rate was 29.22 mgd recorded in January 2008. Some of the member agencies, including Redwood City, have exceeded their PWWF allocation over the years during significant rain events. SBSA is currently evaluating PWWF capacity at the plant and the possible use of the flow equalization facility operated by the West Bay Sanitary District in Menlo Park to address peak wet weather flows.

SBSA adopted a 10-year Capital Improvement Program (CIP) in 2008 to improve the condition of aging system components, in most cases through the replacement of

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19 Information in this paragraph was derived from a June 6, 2008 technical memorandum by Whitley Burchett & Associates, “SBSA Service Area Wastewater Flow Projections.”
structures and mechanical equipment. The CIP would assure compliance with relevant environmental regulations.  

In August 2008, the City completed a Sewer Master Plan, which evaluated the capacity of the sewer system under existing and future loading conditions. The Sewer Master Plan examined existing and future loading conditions in the year 2030, based on land use assumptions related to the 1990 General Plan (projections for the New General Plan were not yet available) as well as 2030 projections from the Association of Bay Area Governments (ABAG). The year 2030 projections utilized in the Sewer Master Plan comprised a City-only population of about 95,000 residents and employment base of 70,000 jobs. The Master Plan did not include projections for sphere of influence areas.

The Sewer Master Plan recommended a program of projects to expand the capacity of the City’s wastewater collection system, primarily consisting of new or expanded sewer lines in prioritized locations. These projects were incorporated into a capital improvement program and are expected to be implemented over a 10-15 year time frame.

Solid Waste

According to the California Integrated Waste Management Board (CIWMB), the City of Redwood City as a whole generates approximately 88,921 tons of solid waste per year. This is comprised of roughly 15,044 tons (2007) from households, and 73,453 tons (2004) from commercial and institutional users.  

As of April 2010, Allied Waste Industries Incorporated provides solid waste collection, recycling, transportation, and disposal services to plan area customers under a franchise agreement. Collected waste is transported to the South Bayside Transfer Station (SBTS), located in the City of San Carlos.

Approximately 90 percent of the solid waste collected from Redwood City is sent to the Ox Mountain Sanitary Landfill, located east of Half Moon Bay in unincorporated San Mateo County. In 2007, approximately 80,117 tons of solid waste from Redwood City was disposed of at this landfill. According to the CIWMB, the Ox Mountain Landfill is estimated to have a remaining capacity of at least 31 million cubic yards or 80 percent of its total potential capacity. This landfill is currently permitted to operate through January 2018; a longer operation period is pending renewal of the landfill’s permit. The other 10 percent of Redwood City’s solid waste is diverted to numerous landfills in the Bay Area.

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and elsewhere in the State of California.\textsuperscript{24} \textbf{Table 4.15-5} lists the landfills that received solid waste from the Redwood City in 2007.

Recyclable materials brought to the SBTS are transferred to the BFI Recyclery, located adjacent to the SBTS. Recyclable materials are picked up bi-weekly from residential and commercial properties and then brought to the transfer station to be sorted. Plastic, glass, tin, paper, newspaper, and aluminum are all accepted as recyclables.\textsuperscript{25}

\textbf{Table 4.15–5 Solid Waste Disposal Facilities Used by Redwood City}

<table>
<thead>
<tr>
<th>Active Landfill</th>
<th>Total Tons of Solid Waste Accepted from Redwood City\textsuperscript{1}</th>
<th>Percentage of Redwood City Solid Waste (%)\textsuperscript{1}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox Mountain Sanitary Landfill, San Mateo County</td>
<td>80,117</td>
<td>90.0</td>
</tr>
<tr>
<td>Altamont Landfill &amp; Resource Recovery, Alameda County</td>
<td>87</td>
<td>0.09</td>
</tr>
<tr>
<td>Bakersfield Metropolitan (Bena) Sanitary Landfill, Kern County</td>
<td>1</td>
<td>0.001</td>
</tr>
<tr>
<td>Forward Landfill Inc., San Joaquin County</td>
<td>5,400</td>
<td>6.07</td>
</tr>
<tr>
<td>Hay Road Landfill Inc., Solano County</td>
<td>72</td>
<td>0.09</td>
</tr>
<tr>
<td>John Smith Road Class III Landfill, San Benito County</td>
<td>58</td>
<td>0.07</td>
</tr>
<tr>
<td>Potrero Hills Landfill, Solano County</td>
<td>2,288</td>
<td>2.57</td>
</tr>
<tr>
<td>Vasco Road Sanitary Landfill, Alameda County</td>
<td>50</td>
<td>0.06</td>
</tr>
<tr>
<td>Zanker Road Class III Landfill, Santa Clara County</td>
<td>63</td>
<td>0.07</td>
</tr>
</tbody>
</table>

\textsuperscript{1}Total tonnages and percentages have been rounded.


\textsuperscript{25}Per City Public Works Services, in 2011, recycling services will be provided by Recology under a new contract with the 12 member agencies of the South Bayside Waste Management Authority (SBWMA). The new collector may have the capability of collecting additional materials, such as compostable organic matter.
4.15.2 REGULATORY SETTING

Water Supply

Urban Water Management Planning Act

The California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610 - 10656) in 1983. In essence, the Act requires most urban water suppliers to prepare urban water management plans (UWMPs) to ensure near and long-term viability and reliability of local water supplies.

Redwood City adopted its most recent UWMP in 2005. The UWMP describes existing and planned sources of water available in the water system service area over the next 20 years in 5-year increments. The UWMP also describes ongoing and programmed water conservation and augmentation efforts, and measures to be taken in times of water shortage. The City anticipates completing the next UWMP by June 30, 2011 in accordance with State law; the updated UWMP will take into account growth projections associated with the New General Plan (if adopted) as well as recent state legislation (including Senate Bill 7, discussed below).

California State Senate Bill 7

Enacted in late 2009, Senate Bill 7 (SB 7) requires the State of California as a whole to achieve a 20 percent reduction in urban per capita water use by December 31, 2020. The law also requires the State to make incremental progress towards this goal, namely achieving a 10 percent per capita reduction in urban water use on or before December 31, 2015. To achieve these goals, the law includes a requirement that urban retail water suppliers would not be eligible for state water grants or loans on and after July 1, 2013, unless they demonstrate compliance with the water conservation requirements of the bill.

SB 7 was enacted as part of a package of statewide water reform legislation in the Extraordinary Legislative Session of fall 2009 (and is thus also referred to as SB X7 7). SB 7 stipulated that its goals would not go into effect without adoption of Senate Bills 1 and 6, each of which were enacted in November 2009. Briefly, among SB 1’s tenets, it establishes a new legislative framework for the provision of a more reliable statewide water supply and an enhanced Sacramento-San Joaquin Delta ecosystem. SB 1 also created the “Delta Stewardship Council,” a new board charged with developing a Delta plan that furthers the co-equal goals of Delta restoration and water supply reliability. SB 6 establishes new requirements for the monitoring of groundwater, for water districts which utilize groundwater in their groundwater supply.

California State Senate Bills 610 and 221

The purpose and legislative intent of Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) is to preclude projects from being approved without specific evaluations being performed and documented by the local water provider proving that water is available to serve the project.

SB 610 (codified at Section 10910 – 10915 of the California Water Code) requires the preparation of a Water Supply Assessment (WSA) for large-scale development projects,
typically defined as any project involving a water demand increase equivalent to that associated with 500 or more dwelling units. The WSA evaluates the water supply available for new development based on anticipated demand. For the broad range of projects that are subject to this law, the statutory WSA must be requested by the lead agency from the local water provider at the time the lead agency determines that an EIR is required for the project under CEQA.

SB 221 (codified at California Government Code Section 66473.7) requires verification from applicable public water systems that a sufficient long-term water supply is available to meet projected demand associated with a proposed subdivision comprising water demand equivalent to 500 or more dwelling units.

Future development within the plan area will be subject to the requirements of these provisions; the preparation of WSAs and water supply verifications will be required for qualifying projects.

**Redwood City Water System Regulations**

Chapter 38 of the Redwood City Code sets forth regulations regarding the water system serving the City of Redwood City and other areas outside City limits. The chapter establishes water service areas and limits allowable connections that cross service area boundaries. This chapter also establishes fees for water service and for new connections, including a facilities fee to provide for the use and construction of existing and future water system capital facilities (Section 38.14).

**Redwood City Recycled Water Ordinance**

Chapter 38, Article VIII of the Redwood City Code outlines local regulations regarding the use of recycled water. Section 38.52 sets forth required usage of recycled water within the defined “Recycled Water Service Area” shown in Figure 4.15-1. As per Section 38.52, the extent of the Recycled Water Service Area is subject to periodic update by resolution of the City Council of Redwood City.

The ordinance requires use of recycled water in a variety of existing and new land uses/developments. Within the recycled water service area, existing and remodeled commercial and industrial buildings must use recycled water for exterior landscaping. Further, new commercial, industrial, and institutional and multifamily residential projects must use recycled water for landscaping, and must also install a dual plumbing system so that recycled water can be utilized for restroom facilities. Such new buildings must incorporate recycled water into internal cooling towers and/or evaporative coolers. In addition to these mandatory uses, Section 38.53 sets forth a number of voluntary uses inside and outside of the Recycled Water Service Area for commercial, residential, institutional, and governmental uses.

**Wastewater**

**California Regional Water Quality Control Board, San Francisco Bay Region**

The SBSA treatment plant operates under a permit from the California Regional Water Quality Control Board (RWQCB).
Wastewater generators must obtain a permit to discharge their wastewater. Pursuant to the federal Clean Water Act and California’s Porter-Cologne Water Quality Control Act, the RWQCB regulates wastewater discharges to surface waters, like San Francisco Bay, through its National Pollutant Discharge Elimination System (NPDES) program.

SBSA’s NPDES permit governs the quantity and quality of treated wastewater that can be discharged into San Francisco Bay. RWQCB requires periodic reissuance of its NPDES permits; SBSA’s wastewater treatment facility permit is scheduled to expire in March 2012; reissuance activities are expected to commence in 2011. 26

Under its existing permits from the RWQCB, SBSA operates a pre-treatment program. Under this program, SBSA and its member agencies have established sewer use ordinances that apply to all industrial users in its sewer system. In brief, the program limits the types of materials that industrial users may discharge into a member agency’s wastewater collection system.

City of Redwood City Code, Chapter 27

Chapter 27 of the Redwood City Code establishes standards, conditions, and requirements related to the use of the City’s sanitary sewerage facilities. The Chapter establishes allowable limits for discharge into the sanitary sewer facilities, including limits on the quantity and composition of discharged wastewater. The Chapter also establishes fees for use and for the development of capital facilities related to wastewater.

Solid Waste

California Integrated Waste Management Act

The California Integrated Waste Management Board operates under the authority of the Integrated Waste Management Act of 1989 (Assembly Bill 939), which mandates local cities and counties divert 50 percent of waste from area landfills. The Act further stipulates that local governments develop a long-term strategy for the management and diversion of solid waste. The City of Redwood City achieved a 61 percent waste diversion rate in 2006, the latest year for which the CIWMB has certified waste reporting data.27

Project Consistency Analysis

Water Policies

Redwood City has complied with the Urban Water Management Planning Act in its adoption of a UWMP. The City’s latest UWMP update was in 2005; the City anticipates adopting a new UWMP in 2011. The 2005 UWMP provides information used in this analysis and is incorporated herein by reference.

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With regard to SB 7, the City’s next UWMP update (anticipated to be published in 2011) will be required to demonstrate compliance with SB 7.

With regard to laws requiring a water supply assessment (SB610 and SB 221), a general plan update is not identified in the legislation as a type of project triggering a WSA. Moreover, the New General Plan does not approve any specific development or specific water use; rather, it would modify allowable land uses, with the potential to increase future system demands. Although a WSA is not required under SB 610 for the New General Plan, CEQA nonetheless requires the preparation of an analysis of water supply adequacy. To this end, this document relies upon and incorporates by reference the City’s 2005 UWMP for part of the water supply analysis for the New General Plan. SB 221 is not applicable to the New General Plan as no subdivision approval is associated with the New General Plan.

Adoption of the New General Plan would not result in any conflict with the City’s water system regulations. These regulations establish fees for water service and for new connections, including a facilities fee to provide for the use and construction of existing and future water system capital facilities. These regulations are consistent with New General Plan Policy BE-22.2, which would set forth performance criteria for new development in the City, including requirements that new development provide or pay in-lieu fees for fair-share costs of any necessary new infrastructure.

Adoption of the New General Plan would support and thus be consistent with the City’s Recycled Water Use Ordinance. Goal NR-2 and its related policies and programs encourage the reduction of water consumption through the aggressive implementation of conservation programs, including demand reduction through wider use of recycled water. In addition, Program BE-135 explicitly calls for the expansion of recycled water use. With regard to the City’s potable water and recycled water storage and distribution regulations, the New General Plan includes several policies (specifically, Policies BE-40.1 through BE-40.6) that could improve and expand the potable water and recycled water distribution systems, as well as maintain the existing system infrastructures. Through Program BE-134, the project could improve water distribution capacity by requiring that the City complete a Water Master Plan that could include recommendations to improve capacity of the system. Program BE-122 calls for additional funding to the City’s Capital Improvement Program to be allocated as appropriate for upgrades or replacing pipes, storage tanks, and pump stations in the City’s water system. These measures could maintain and increase the capacity of these systems in the planning horizon period.

**Wastewater Policies**

Discharges of treated wastewater into San Francisco Bay from the SBSA treatment plant will continue to be regulated by limits set in NPDES permits for the plant. The total amount of wastewater discharged by SBSA will remain constrained by these permits. As discussed in further detail within the impact section, development allowable under the New General Plan would not generate an amount of wastewater during average dry weather periods in excess of the City’s capacity rights, and by extension, would not cause the SBSA to exceed the average dry weather limits set forth via NPDES permit. The New General Plan could however, generate an amount of wastewater that during peak wet
weather flows exceeds the City’s capacity rights at SBSA; mitigation is presented below to address this matter. Overall, the peak wet weather discharge of the SBSA, inclusive of the rights of all its member agencies, would remain constrained by NPDES permit; any change to this permit would require the approval of the RWQCB.

In terms of compliance with Chapter 27 of the Redwood City Municipal Code, New General Plan Program BE-123 would require the City to annually survey at least 15 miles of the sewer pipeline to maintain, repair, and upgrade the City’s wastewater collection system. Program BE-124 would ensure that adequate wastewater conveyance capacity is available for future development outside of the service area. Additionally, Policies BE-41.1 through BE-41.3 would require the City to provide adequate and reliable wastewater collection and treatment facilities that meet current and future needs.

Solid Waste Policies

In the last available reporting year, the City achieved a 61 percent waste diversion rate, in excess of the 50 percent rate required by the California Integrated Waste Management Act. Program BE-140 of the New General Plan would require the City to increase its efforts to divert waste from landfills. Policies BE-45.1 through BE-45.6 identify specific methods to reduce the amount of solid waste destined for landfills.

The project would therefore be consistent with the applicable policies relevant to water storage and distribution, recycled water infrastructure, wastewater collection and treatment facilities, and solid waste.

4.15.3 Thresholds of Significance

Significance Criteria

The City has not established local CEQA significance thresholds as described in Section 15064.7 of the State CEQA Guidelines. Therefore, significance determinations utilized in this section are from Appendix G of the CEQA Guidelines. A significant impact could occur if development allowed by adoption of the New General Plan would:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

d) Generate new or increased demands for water entitlements and/or resources.

e) Generate a demand for wastewater treatment that exceeds the capacity of the wastewater treatment provider, when considered in addition to the provider’s existing commitments.
f) Generate a demand for solid waste disposal that could not be accommodated by the landfill(s) serving the project area.

g) Not comply with federal, state, and local statues and regulations related to solid waste.

The effects of the development that could be allowed by adoption of the New General Plan on stormwater drainage facilities (criterion “c” in the list above) are discussed in Section 4.8, Hydrology and Water Quality.

4.15.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The evaluation of the New General Plan’s impacts to utilities relies upon estimates of projected allowable housing and non-residential growth conducted by the City (see Appendix B). These housing and non-residential development projections were translated by the City into estimated maximum allowable increases in population and the number of jobs for the year 2030 (the expected horizon year of the New General Plan). These estimates were in turn used to calculate anticipated utilities demands at the horizon year. The methods for calculating utility demands are described under the relevant impact discussion. The analysis in this section identifies potential impacts related to wastewater, water, and solid waste services using the significance criteria listed in Section 4.15.3.

Project Impacts

Impact 4.15-1: Development allowed by the New General Plan would not result in an exceedance of the Regional Water Quality Control Board’s wastewater treatment requirements. (Less than Significant)

As noted above, SBSA’s 10 year Capital Improvement Program (initiated in 2008) will assure that the facility is able to continue to meet or exceed the wastewater treatment requirements established for it by the San Francisco Bay Regional Water Quality Control Board for discharge into San Francisco Bay. As a result, New General Plan impacts to wastewater treatment requirements would be less than significant. No mitigation is required.

Impact 4.15-2: Development allowed by the New General Plan may require or result in the construction of new City water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

The City’s water infrastructure system consists of a network of pipelines, storage reservoirs, and pump stations. According to the City, about 30 percent of the pipes in the system are more than 50 years in age, and thus may be at or near their useful life.

According to the 2005 UWMP, the water system is adequate to meet maximum day water demands as long as the SFPUC pipelines are in service. However, the age of the system coupled with potential increases in demand associated with the growth forecast in the New General Plan will require close monitoring of the system to ensure the facilities continue to operate in good condition and there is no interruption of water service.
To ensure that both existing and future water system infrastructure needs are met, New General Plan Program BE-134 calls for the preparation of a Water Master Plan that would include recommendations to ensure the long term viability of the system in light of any anticipated capacity changes, as well as to ensure reliability of the system during seismic events. As noted previously, the City is currently in the process of preparing this Water Master Plan. Program BE-134 also calls for the plan to be updated every five years to recognize improvements completed and plan for any needed new upgrades in the water system. According to the City, the Water Master Plan will include a capital improvement program as well as an integrated seismic improvement program. Further, Program NR-3.1 requires new development to fund its fair-share costs associated with the provision of water service, which will help ensure that adequate funding is available to implement the capital improvement program.

The recommendations of the Water Master Plan would be considered and incorporated as needed into the City’s annual Water Capital Improvement Program. This program regularly replaces and upgrades under-capacity, aging water pipes, pump stations, and reservoirs. Any specific physical improvements to the water system resulting from these planning and funding efforts would require environmental evaluation under CEQA. Through implementation of this program, the City aims to sustain reliable system capacity for current demand and future growth.

As the need for new or upgraded water infrastructure is identified through the Water Master Plan and CIP, those projects will undergo their own environmental review at the time they are authorized for design and construction. Therefore, the New General Plan would result in a less than significant impact relative to water distribution infrastructure, and no mitigation is required.

**Impact 4.15-3: Development allowed by the New General Plan may require or result in the construction of new City wastewater collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)**

The City’s existing wastewater collection system is designed to convey dry and wet weather flows based on current demands. The New General Plan would modify allowable land uses, with the potential to increase future wastewater flow rates.

The City has a sewer replacement program that annually replaces and upgrades outdated, aging sewer pipes and pump stations and sustains current capacity. At present, new development in Redwood City is assessed a sewer system capital facility fee. Existing customers pay a monthly sewer service charge to pay for the capital improvement program. These sources of funds comprise the City’s Sewer Enterprise Fund. Collected funds are used to maintain and/or expand system capacity as required.

Policies and programs in the New General Plan would result in the continuation of ongoing monitoring, maintenance, and upgrades to the City’s wastewater collection system. In terms of addressing the potential incremental system demands associated with new development, Policy BE-22.2 would apply a series of performance criteria to new development. One criterion is that all new development be required to provide or pay fair-
share contributions towards the cost of any needed new infrastructure. In terms of the sewer system as a whole, Program BE-123 calls for the City to continue to provide funding to repair, maintain, and upgrade the City’s wastewater collection system. The program includes a requirement for an annual survey of at least 15 miles of sewer pipelines to assess for any deteriorated conditions. To the extent any new or expanded sewer facilities are necessary, such improvements would be subject to separate CEQA review.

At the programmatic level, the City’s ongoing collection and use of sewer capital facilities fees combined with adherence to the above referenced New General Plan policies and programs would reduce potential impacts to construction and/or repair of wastewater collection facilities to a less than significant level. No mitigation is necessary.

**Impact 4.15-4: Development allowed by the New General Plan could generate an increase in future demand for water supply that is not anticipated to be fully met by the City’s existing and future water supplies. (Significant and Unavoidable)**

Redwood City’s 2005 UWMP identified the availability of water regionally and locally, and estimated anticipated water demand and supply over five year increments through the year 2030. Estimates of water demand in the 2005 UWMP were based on local and regional population and employment projections, including but not limited to projections from the Redwood City 1990 General Plan (as updated by City Planning staff) and projections from ABAG. Water use projections were developed by customer type (e.g., residential, commercial, etc.) and included assumptions regarding water conservation and recycled water programs and that would reduce water demand.

The New General Plan includes 2030 growth projections that are somewhat higher than those assumed in the 2005 UWMP. The New General Plan also assumes that a higher percentage of growth would occur in the first 10-year period of the General Plan (2010 to 2020) than in the second 10-year period (2020 to 2030).

Water demand projections for growth under the New General Plan were prepared using the same methods as the 2005 UWMP (i.e., demand by customer type, including assumptions for water conservation and water recycling). These projections were prepared for 5-year increments from 2010 to 2030 and are shown in Table 4.15-6. Actual water use in 2008 is shown for comparison purposes. Table 4.15-6 also shows the City’s SFPUC potable water supply assurance of 12,243 afy; the City assumes that this supply will be available through the plan horizon year of 2030. It is important to note that the water demand projections were prepared for growth expected within the City’s water service area, which includes the City limits and some portions of the Sphere of Influence. The size and extent of the City’s water service area is not anticipated to undergo substantial change during the planning period through the horizon year of 2030, and other areas of the City’s Sphere of Influence are provided potable water by other water purveyors (e.g., California Water Service Company). Thus, potable water demand projections were prepared for the area over which the City has water service responsibility.

The water demand projections assume that certain water demands will be met by the City’s recycled water project, thereby reducing the City’s overall potable water demand.
over time. The City assumes that its recycled water project will meet anticipated recycled water demands in the year 2030, as indicated in the 2005 UWMP; the recycled water system has been designed to meet this future demand. Thus, this analysis focuses on the potable water demands of the New General Plan.

Table 4.15-6  Redwood City 2030 Potable Water Demand (afy)

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potable Demand (af)</td>
<td>12,307</td>
<td>11,636</td>
<td>12,127</td>
<td>12,633</td>
<td>13,223</td>
<td>13,828</td>
</tr>
<tr>
<td>SFPUC Supply (af)</td>
<td>12,243</td>
<td>12,243</td>
<td>12,243</td>
<td>12,243</td>
<td>12,243</td>
<td>12,243</td>
</tr>
<tr>
<td>Supply Surplus (deficit)</td>
<td>(64)</td>
<td>607</td>
<td>116</td>
<td>(390)</td>
<td>(980)</td>
<td>(1,585)</td>
</tr>
</tbody>
</table>

Source: City of Redwood City, 2010.

As shown in Table 4.15-6, potable water demands are anticipated to exceed available SFPUC supply mid-way through the New General Plan time frame, i.e., in 2020. As noted previously, growth under the New General Plan is expected to be greater within the first ten years of the Plan time frame than the second ten years. This potential demand exceedance of available potable supply is considered a significant impact. Several factors will serve to mitigate this impact, as follows.

**Conservative Nature of Water Demand Projections**

The water demand projections for the New General Plan were prepared using the same methods used for the 2005 UWMP. These methods make relatively conservative assumptions about water use factors for land use types (i.e., may overestimate the actual demands) as well as for the effects of conservation programs. In addition, the projections do not take into account the need for the City to meet the requirements for reducing per capita water demand under SB 7. The City will be addressing compliance with SB 7 under the 2010-2011 UWMP update. Therefore, the projected water demands shown in Table 4.15-6 are considered to be conservative; actual demands are expected to be lower.

**SFPUC Re-Evaluation of Long-Term Water Demands in 2018**

As described above, the SFPUC adopted a Water System Improvement Program (WSIP) Variant that provides its customers with 265 mgd of potable water through 2018. At or before that time, the SFPUC is expected to re-evaluate its long-term demand and supply projections to 2030. As a member of BAWSCA, Redwood City is expected to provide updated potable water demands to SFPUC as part of that re-evaluation process. Redwood City’s anticipated supply deficit is projected to occur by year 2020 under the New General Plan growth projections. Thus, in 2018 Redwood City will have the opportunity and responsibility to assess the rate of growth under the New General Plan and re-calibrate its demand assumptions at that time. If the amount of growth projected for 2020 under the New General Plan does not occur or occurs at a slower rate, potable water supplies may continue to be sufficient after 2020.

**Urban Water Management Plans in 2011 and 2015**

In accordance with the Urban Water Management Planning Act, Redwood City will be preparing its next UWMP in 2010-2011, and again in 2015 (UWMPs are required by law to
be updated every five years). The 2011 UWMP will be prepared to account for the New General Plan that is adopted by the City and, as noted above, the City’s compliance with SB 7. It is anticipated that the City will be updating its water use factors for land use types in the next UWMP, and that these factors will reflect new and ongoing demand management programs and other conservation efforts. These new water use factors may show a decrease in overall demand in the City, and the projections shown in Table 4.15-6 would be revised accordingly.

**New General Plan Policies and Programs**

The New General Plan includes several policies and programs that address the potential for inadequate water supply to accommodate proposed development under the New General Plan.

Policy NR-1.1 requires the City to maintain or increase its SFPUC Supply Assurance with SFPUC. This will ensure that SFPUC potable supplies are secured into the future.

Policy NR-1.2 requires the City to continue to explore the possibility of developing additional water sources, including the use of groundwater, that are cost-effective and do not result in long-term unacceptable environmental damage. Implementation of this policy could lead to new supplies not currently identified in this analysis.

Policy NR-1.4 requires the City to explore surface water transfers from areas outside of the BAWSCA service area. Policy NR-1.5 requires the City to explore the potential for transferring recycled water for potable water. Implementation of these policies may also result in new supplies not currently identified in this analysis.

Policies NR-2.1 through NR-2.4 require aggressive implementation of water conservation policies and programs. The implementation of these policies will help minimize the impacts of potential shortage through water demand management.

Policy NR-3.1 would require that new development in Redwood City demonstrate that adequate water is available before project approval, and to fund its fair-share costs associated with the provision of water service. Implementation of this policy would preclude the City from approving any new development project that did not demonstrate that the City had adequate water supplies to serve the project.

Program NR-2 (echoed in Program BE-22) would require the City to track overall water use in Redwood City and provide an annual report that measures use against a baseline of UWMP demand projections. This water usage monitoring is intended to link the allowable amount of new development to the City’s assured supply of water.

Program NR-3 requires the City to continue to update the UWMP every five years, further ensuring that future supplies meet anticipated demands.

Program NR-4 encourages developers to work with City staff and BAWSCA to offset new water demand by transferring supply assurances from other agencies to Redwood City. The 2009 Water Supply Agreement between Redwood City and SFPUC allows for these transfers to occur. Implementation of this program could serve to bring new potable supplies to Redwood City in the future that are not assumed under the water demand projections in Table 4.15-6.
Program NR-7 requires the City to develop a standardized method to track and analyze water demand and available supply for new developments, and to consider expanding the City’s Water Supply Assessment requirements to a broader range of projects for monitoring ability. The intent of this program is to review the City’s total water demand and supply annually to ensure that adequate water supplies are available for new development anticipated by the New General Plan.

Program NR-11 requires the City to maintain its BAWSCA membership and to consult with BAWSCA to explore the potential for water transfers of recycled water for potable water. Implementation of this program may result in additional supplements to the City’s potable water supply.

Program NR-12 requires the City to continue to comply with the water supply planning requirements of SB 610 and SB 221 to ensure that adequate water supplies are available to new development.

Program BE-134 would require that the City complete a Water Master Plan that would include recommendations to improve water distribution capacity and utilize water demand assumptions from future UWMPs and the New General Plan.

Program BE-135 encourages the expansion of recycled water use in the City by expanding services to the majority of the City and exploring opportunities to export recycled water to adjacent communities and/or exchange recycled water for drinking water.

**Conclusion Regarding Water Supply Sufficiency for New General Plan**

The proposed New General Plan policies and programs described above, partnered with the future responsibility of the City to re-evaluate its water demand projections on an ongoing basis, would serve to ensure that the City has adequate water supplies to serve its anticipated demands and does not approve developments for which water supply is not available. However, none of the above factors or policies would guarantee that the level of new development in the City projected under the New General Plan could be fully served by the City’s anticipated Supply Assurance from the SFPUC. If development occurs as projected, the City’s water demands could outpace available supplies by 2020. This would be a significant unavoidable environmental impact under significance criteria (d). Beyond the above factors, programs, and policies that address the impact, no other mitigation is feasible.

**Impact 4.15-5: Development allowed by the New General Plan may generate a demand for wastewater treatment that exceeds the capacity of the wastewater treatment provider. (Less than Significant)**

The New General Plan would allow for an increment of new residential and non-residential growth that would be expected to result in an increase in wastewater generation over existing conditions, potentially exceeding capacity at the SBSA treatment facility. Wastewater treatment plant capacity impacts are considered separately in terms of average dry weather and peak wet weather flows.
**Wastewater Treatment Capacity – Average Dry Weather Flow**

As stated previously, Redwood City has been allocated about 13.8 mgd of average dry weather capacity at the SBSA treatment facility. Allowable land uses and intensities under the New General Plan have the potential to increase average dry weather inflows to the treatment facility.

The population growth projected for Redwood City in the New General Plan is similar to that assumed in the City’s 2005 UWMP. The UWMP assumed a 2030 City population of about 93,000 people and a 2030 employment base of about 69,000 jobs. For comparative purpose, the New General Plan assumes the City could have a 2030 population of 92,000 people and an employment base of about 77,000 jobs. The 2008 SBSA Service Area Wastewater Flow Projections study calculated wastewater flow projections for Redwood City using population growth from the 2005 UWMP and assumed a per capita wastewater generation rate of 70 gpd. The report projected the 2030 wastewater average dry weather flow rates in Redwood City to be 6.53 mgd. In addition, year 2030 flows from Fair Oaks Sewer Maintenance District were estimated at 2.73 mgd.

The City estimates that the New General Plan would allow for a population increase to 116,732 by the year 2030, inclusive of the City limits and sphere of influence areas (i.e., the plan area). Based on the same per capita wastewater generation rate of 70 gpd assumed for the 2008 SBSA flow study, the total estimated average dry weather flow for the plan area in 2030 would be 8.17 mgd, which is well below the City’s average dry weather capacity allocation of 13.8 mgd.

In addition, the New General Plan incorporates a number of programs and policies intended to reduce water usage and thus reduce the amount of wastewater generated and requiring treatment. Adherence to several policies and programs in the Natural Resources chapter of the New General Plan (including Policies NR-2.1 through NR-2.4, Program NR-1, and others) would result in the implementation of aggressive water conservation programs in new residential and non-residential development. In addition, Policy BE-22.2 would apply a series of performance criteria to new development. One criterion is that all new development be required to provide or pay fair-share contributions towards the cost of any needed new infrastructure, including wastewater treatment capacity.

Because the City’s current allocation of dry weather treatment capacity greatly exceeds its anticipated dry weather generation rate under the New General Plan, and anticipating the implementation of the New General Plan policies and programs described above, the New General Plan is not expected to result in a significant impact relating to dry weather wastewater treatment capacity and no mitigation is required.

**Wastewater Treatment Capacity – Peak Wet Weather Flow**

PWWF is calculated based on average dry weather flow plus rainfall infiltration and inflow. As noted previously, Redwood City has been allocated 30.5 mgd of peak wet weather treatment capacity at the SBSA facility. According to SBSA, Redwood City’s

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highest peak hourly flow rate was 29.22 mgd in January 2008. The SBSA facility at present has a peak wet weather flow capacity of 71 mgd for all of its member agencies. SBSA is currently evaluating management of the peak wet weather flows. Any new or upgraded facilities that may be proposed to address peak wet weather capacity will require separate environmental review under CEQA.

Projecting peak wet weather flows and the capacity required to treat them is a function of the rainfall event; it is not a function of population and employment growth, unless that growth results in developments that create a significant increase in impervious surfaces. Rainfall infiltration and inflow is typically estimated using storm events. Management of peak wet weather flows at SBSA is the joint responsibility of the individual member agencies and the SBSA as the JPA. As indicated previously, SBSA is currently evaluating peak wet weather flow management approaches; it and the member agencies are responsible for managing peak wet weather flows so that impacts to the plant’s wet weather capacity are avoided or minimized.

The New General Plan also incorporates a number of programs and policies intended to reduce water usage and thus reduce the amount of wastewater generated and requiring treatment. Adherence to several policies and programs in the Natural Resources chapter of the New General Plan (including Policies NR-2.1 through NR-2.4, Program NR-1, and others) would result in the implementation of aggressive water conservation programs in new residential and non-residential development. In addition, Policy BE-22.2 would apply a series of performance criteria to new development. One criterion is that all new development be required to provide or pay fair-share contributions towards the cost of any needed new infrastructure, including wastewater treatment capacity.

As noted above, the City’s current allocation of peak wet weather treatment capacity at the SBSA facility exceeds its highest recorded peak hourly flow rate, and implementation of the New General Plan is not expected to increase the City’s PWWF potential beyond its currently capacity allocation. As a result, continued management of the peak wet weather flows by the City and the JPA, along with implementation of the New General Plan policies identified above, would result in a less than significant impact to PWWF treatment capacity; no mitigation is necessary.

Solid Waste

Impact 4.15-6: Development allowed by the New General Plan could result in increased solid waste generation over existing levels, but would not require additional landfill capacity. The New General Plan would comply with pertinent regulations regarding solid waste. (Less than Significant)

The New General Plan would not expressly result in new development increasing solid waste generation, but would instead modify allowable land uses, with the potential to increase solid waste generation as new development is proposed.

As described in Table 4.15-5, nine landfills currently serve the plan area. The three largest landfills accepting the vast majority of waste from the plan area have closure dates between 2011 and 2020. The closure dates are subject to adjustment and extension under
the direction of Cal Recycle, the State’s waste reduction and management agency. Combined, the maximum daily throughput accepted at these three facilities is about 16,500 tons of solid waste per day.

State law requires a 50 percent diversion of solid waste from landfills. Redwood City has a current waste reduction rate of 61 percent. Implementation of the General Plan Policy BE-45.1 requires the City to continue to meet or exceed the state mandated waste diversion rate. Moreover, Policy BE-45.2 encourages recycling, composting, and source reduction by residential and non-residential sources that could divert waste from landfills. Similarly, Program BE-140 would increase the City’s efforts to divert waste from landfills.

As shown in Table 4.15-7, the increment of new growth allowable under the New General could result in an increase in solid waste generation of about 60 tons per day, which equates to less than 1 percent of the maximum daily throughput accepted at the three largest landfills receiving waste from the plan area, a negligible contribution that would not require the expansion of any existing landfill. According to Cal Recycle, Ox Mountain Sanitary Landfill has a substantial amount of remaining capacity to continue receiving solid waste from Redwood City and other jurisdictions. Therefore, solid waste generation impacts related to the New General Plan would be less than significant. No mitigation is required.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Solid Waste Generation Rates</th>
<th>Existing Designations</th>
<th>Redwood City New General Plan (2030)</th>
<th>Net Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Units (du/sf)</td>
<td>Solid Waste Generated (lb/yr)</td>
<td>Number of Units (du/sf)</td>
<td>Solid Waste Generated (lb/yr)</td>
</tr>
<tr>
<td>Residential</td>
<td>8.6 lb/du/day</td>
<td>37,181 du</td>
<td>116,711,159 lb/yr</td>
<td>46,284 du</td>
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<tr>
<td>Commercial</td>
<td>0.006 lb/sf/day</td>
<td>14,047,029 sf</td>
<td>30,762,993 lb/yr</td>
<td>17,366,737 sf</td>
</tr>
<tr>
<td>Mixed Use</td>
<td>0.006 lb/sf/day</td>
<td>9,278,135 sf</td>
<td>20,319,116 lb/yr</td>
<td>11,020,639 sf</td>
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<tr>
<td>Industrial</td>
<td>0.006 lb/sf/day</td>
<td>5,024,112 sf</td>
<td>11,002,805 lb/yr</td>
<td>6,571,217 sf</td>
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<tr>
<td>Hospital</td>
<td>0.003 lb/sf/day</td>
<td>857,808 sf</td>
<td>939,300 lb/yr</td>
<td>1,461,072 sf</td>
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<tr>
<td>Marina</td>
<td>0.006 lb/sf/day</td>
<td>57,476 sf</td>
<td>126,464 lb/yr</td>
<td>219,580 sf</td>
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<tr>
<td>Public Facility</td>
<td>0.007 lb/sf/day</td>
<td>34,644 sf</td>
<td>88,515 lb/yr</td>
<td>34,644 sf</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>179,950,352 lb/yr</td>
<td>224,014,062 lb/yr</td>
</tr>
</tbody>
</table>

Note: Mixed Uses are considered under commercial solid waste generation rates.
