# 4.12.2 **RECYCLED WATER - Public Utilities**

#### 4.12.2.1 INTRODUCTION

Information for the recycled water analysis is based on information within the following documents:

- Creekview Specific Plan Recycled Water Study Final Report, MacKay and Somps Civil Engineers, Inc., November 30, 2010
- Creekview Specific Plan Water Conservation Plan, HydroScience Engineers,
   November 23, 2010
- South Placer Regional Wastewater and Recycled Water Systems Evaluation, RMC, updated December, 2009
- Sierra Vista Specific Plan, Final EIR, May 2010
- West Roseville Specific Plan Final EIR, February 2004
- West Roseville Recycled Water Focused Study, RMC, Technical Memorandum August 11, 2010
- Draft Creekview Specific Plan, 2010

All of the above listed documents are available for review during normal business hours at:

#### City of Roseville Permit Center

311 Vernon Street Roseville, California

One comment pertaining to recycled water was received in response to the NOP (Appendix A). All comments are included in Appendix B. The comment requests the City to clearly identify recycled water demands, supply availability and

treatment and storage capacities for the project separately from potable surface water.

#### 4.12.2.2 ENVIRONMENTAL SETTING

# Wastewater Treatment and Recycled Water Distribution System

The City of Roseville, the South Placer Municipal Utility District, and Placer County are regional partners in the South Placer Wastewater Authority (SPWA). The SPWA was created in 2000 to oversee policy for funding regional wastewater and recycled water infrastructure. The City owns and operates two regional wastewater treatment facilities on behalf of the regional partners. These treatment facilities are the Dry Creek Wastewater Treatment Plant (Dry Creek WWTP or DCWWTP) and the Pleasant Grove wastewater treatment plant (Pleasant Grove WWTP or PGWWTP). Both plants produce a Title 22 quality effluent that meets the requirements for "full unrestricted reuse" that is available for recycled water applications. Recycled water for the proposed project would be provided from the Pleasant Grove WWTP.

The City has prepared the South Placer Regional Wastewater and Recycled Water Systems Evaluation (Systems Evaluation, updated December 2009), which delineates the 2005 regional wastewater service area boundary (2005 SAB) and provides baseline and projected characterizations of its regional wastewater and recycled water systems. Chapter 6, Recycled Water Systems Evaluation, of the Systems Evaluation report was conducted to assist in the ongoing expansion of a regional water recycling system. The goal of utilizing recycled water supplies is to promote responsible water supply management. This goal is achieved by beneficially reusing available tertiary treated recycled water for irrigation in order to make surface water and groundwater supplies available for potable uses. Since its initial publication in June 2007, the Systems Evaluation Report has been updated with new information regarding urban growth areas. Tech Memos 5a and 5b (Market Assessment for Recycled Water Systems and Alternatives Development and Evaluation for Recycled Water

Distribution System, respectively) were updated February 11, 2008 and incorporated into the December 2009 updated Final Report.

The City's recycled water distribution system operates under a Master Water Reclamation Permit (Order No.97-147) issued by the Central Valley Regional Water Quality Control Board (RWQCB). This permit outlines specific prohibitions on the use of recycled water by the City and places stringent water quality, treatment and disinfection standards on the City's recycled water. Recycled water is distributed to customers through a system of recycled water pipelines, storage tanks and pump stations. Recycled water pipelines originate at the two regional treatment plants and range in size from 6- to-30-inch diameter. The City operates three recycled water storage tanks on two sites totaling 3.5 million gallons (mg) of capacity. Each storage tank site has an associated pumping station to boost system pressures as required to meet customer service needs. Recycled water is used to supplement City water supply needs, and is used as irrigation water for parks, golf courses, non residential properties, landscape medians and corridors and for industrial cooling at the Roseville Energy Park.

### **Recycled Water Demand**

The City's recycled water system currently delivers approximately 3,000 AFY of recycled water to parks, streetscapes, and golf course customers within and outside of the City limits. Of this amount, approximately 2,040 AFY are for non-industrial customers located within the City of Roseville. The City also supplies recycled water for cooling purposes to the Roseville Energy Park. Expansion of the system is planned to allow for more intensive use of recycled water in the western portion of the City as new development is built. Recycled water demands within the City are expected to increase by approximately 2,348 AFY, for a total recycled water demand of 4,388 AFY at buildout of the City's existing General Plan.

The Systems Evaluation considered future Urban Growth Areas (UGAs) to determine an ultimate SPWA service area boundary and estimated recycled water demands. The UGAs consist of recently approved and pending specific

plans and other development proposals, and thus include areas that have not yet been approved for development. Specifically, the UGAs considered are:

- Curry Creek;
- Regional University;
- Placer Ranch;
- Placer Vineyards;
- Creekview, including the Reason Farms panhandle area (Off-Site Improvement Area);
- Sierra Vista; and
- Brookfield (Amoruso Ranch Study Area).

These projects are discussed in detail in Chapter 5, CEQA Considerations. The annual recycled water demands of these UGAs were estimated at 7,762 AFY. As shown in Table 4.12.2-1 of this amount, 562 AFY was estimated for the CSP area recycled water demand, including the Reason Farms Panhandle. This volume of recycled water is documented within Table 6-3 of the December 2009 Updated Systems Evaluation document.

# **Recycled Water Supply Policy**

It is the policy of the City to provide a UGA with a maximum supply of recycled water that is equal to the amount of wastewater that is generated by the UGA during July average dry weather flow (ADWF) conditions. This supply is henceforth referred to as the "committed [recycled water] supply." In order to provide capacity to serve demand that may exceed the committed supply, UGAs accepting recycled water are required to provide storage facilities capable of storing 100 percent of one July day demand (i.e., the total volume of water required to meet demands over a 24-hour period in July) plus an additional 20 percent for operational storage. If a UGA's July day demand (or storage volume) exceeds the committed supply, the difference may be met with supplemental supplies, which may include additional available recycled water, untreated groundwater, or potable water supplies.

TABLE 4.12.2-1
URBAN GROWTH AREAS
RECYCLED WATER CUSTOMERS AND DEMANDS

Urban Growth Area	Acres	Acres Served by RW	Annual Demand (afy)	Peak Day (July) Demand (mgd)	Committed Supply (Assumed ADWF) (mgd)	Probable Source
Brookfield <sup>1</sup>	683	211	420	0.94	0.73	PGWWTP
Creekview & Panhandle <sup>2</sup>	749	250	562	1.25	1.06	PGWWTP
Curry Creek	3,212	798	1,860	4.11	2.69	PGWWTP
Regional University	1,140	543	779	1.79	1.17	PGWWTP
Placer Ranch	2,213	398	1,494	3.34	2.17	PGWWTP
Placer Vineyards	5,148	386	1,580	3.5	2.81	DCWWTP
Sierra Vista	1,785	280	1,074	2.46	2.10	PGWWTP
Total	14,930	2,796	7,762	17.32	12.76	

- 1. Also known as Amoruso Ranch Study Area
- 2. This UGA includes both the 501-acre Creekview Specific Plan Area and a portion of Reason Farms site known as the Panhandle.

# 4.12.2.3 REGULATORY SETTING

#### Federal

There are no federal regulations with regard to recycled water.

#### State

# **Department of Public Health**

California Department of Public Health regulations require that recycled water must be conveyed in a totally separate distribution system from the potable water supply. The City's Water Utility is responsible for implementing a cross-connection program to ensure that future potable services are not accidentally connected to the recycled water system. Additionally, a public information program (including signage) is in place to notify the public of the use and location of recycled water application. Regulatory considerations pertaining to the treatment of wastewater for reclamation purposes are described in Section 4.9, Hazardous Materials and Public Safety.

# Regional Water Quality Control Board - Recycled Water Master Reclamation Permit

The recycled water distribution system operates under a Master Water Reclamation Permit (Order No. 97-147) issued by the Regional Water Quality Control Board (RWQCB). This permit contains specific prohibitions on the use of recycled water by the City, and places stringent water quality and treatment and disinfection standards on the City's recycled water.

#### Local

#### City of Roseville Municipal Code

Chapter 14.17 of the City's Municipal Code contains regulations pertaining to recycled water use. It is the policy of the City of Roseville that where the use of recycled water is feasible, appropriate, and acceptable to all applicable

regulatory agencies, the City will require an owner or customer to use recycled water in lieu of potable water where appropriate. The Recycled Water Division of the Environmental Utilities Department manages recycled water use in the City of Roseville.

# City of Roseville General Plan

The City of Roseville General Plan contains goals and policies that relate to the use of recycled water:

- **Goal 1:** Participate in a cooperative regional approach to wastewater treatment and discharge in order to maintain a system that adequate services planned growth within the City.
- **Goal 2:** Provide wastewater services to all existing and future Roseville development through the City's wastewater utility. The provision of services by another provider may be considered when it is determined that such service is beneficial to the City and its utility customers or the provision of City services is not feasible.
- **Goal 3:** Actively pursue the use of recycled water where appropriate and expand recycled water distribution system to deliver and meet estimated demands of 4,500 acre-feet/year.
- **Goal 4:** Meet State of California and EPA water quality standards for the discharge of treated wastewater, as well as meet State of California quality standards for the production of recycled water.

#### City of Roseville Improvement Standards

Section 14 of the City's Improvement Standards (Recycled Water Infrastructure Design) provides criteria for design of recycled water systems. Compliance with these standards reduces impacts related to recycled water distribution by ensuring that these systems are properly sized for anticipated demands.

#### **Applicable Creekview Specific Plan Measures**

The proposed CSP includes water savings measures with the goal of reducing the project's overall water demands for both potable and/or recycled water to the greatest extent feasible and practicable. The following recycled water conservation measures will be implemented in the CSP development in an effort to reach the City's water conservation goals:

- Turf Reductions in Parks, Paseos, and Landscape Corridors This
  involves limiting the use of turf on non-residential parcels within the CSP,
  with a focus on water efficiencies in parks, paseos, and landscape
  corridors. For these areas, the landscape design will reduce the area of
  turf and increase the area of low-water-use plant species, as compared to
  the design of these features in other specific plan areas. To achieve the
  desired water conservation, the following criteria will be implemented:
  - Parks It is assumed that approximately 80% of a typical park's square footage consists of turf with the remaining 20% in non irrigated surfaces. Parks in the CSP area would have a maximum cumulative total area of 60%, 20% low water use plant species, and the remaining 20% in hardscape or other non-irrigated surfaces. It is possible that even less than 60% turf area could be achieve within parks provided it is compatible with the amenities planned for the park. However, for purposes of the analysis 60% turf area is assumed.
  - Paseos and Landscape Corridors It is assumed that paseos and landscape corridors are typically comprised of 80% turf area and 20% non-irrigated areas. The CSP paseos and landscape corridors would have a maximum of 30% turf area, 50% low water use plant species and 20% non-irrigated surfaces.
  - Smart/Centrally Controlled Irrigation Controllers Smart and centrally controlled irrigation controllers restrict irrigation to only the

times and water application rates that are necessary to maintain landscaping. They account for changes in the demand for water, which varies with weather patterns and seasonal influences. For the CSP area, smart irrigation controllers will be required for residential, small commercial and quasi-public parcels subject to turf reduction measures, and centrally controlled irrigation controllers will be required for larger commercial and publicly maintained parcels.

With full implementation of these measures throughout the Plan Area, it is estimated that the recycled water conservation measures outlined above will reduce the CSP's overall recycled water demand by approximately 79 AFY.

# **4.12.2.4 IMPACTS**

# **Analysis Methodology**

For purposes of this analysis, the project area is the entire annexation area with the proposed land uses shown on Figure 2-4, *Land Use Plan*.

#### Recycled Water Supply

As discussed above, recycled water from the PGWWTP is an assured source of recycled water that would be available to serve the project. In accordance with the recycled water supply policy and as described in Section 4.12.3, a total of 0.0.37 mgd ADWF of tertiary treated wastewater is available to service recycled water for the CSP. This is considered the "committed supply". This analysis compares the committed supply available for the project to the estimated recycled water demand and evaluates the need for additional supplemental supplies to meet a peak day demand that is in excess of the committed supply.

# **Recycled Water Distribution**

A recycled water study was developed for the CSP. The recycled water study includes an analysis of the recycled water distribution system required within

the plan area and an evaluation of conveyance of recycled water from the PGWWTP to the plan area. The study considers pumping and operational storage needs required to meet hourly peak recycled water flow rates. The recycled water study, prepared by MacKay & Somps dated November 30, 2010 is included in Attachment 4 of Appendix H-2.

The analysis of the recycled water distribution system was performed using a hydraulic computer model. Pipeline alignments in the model corresponding to the CSP roadway network provide a backbone distribution system. The recommended alternative for providing recycled water to the CSP area assumes connection to facilities located within the WRSP and expansion of both the storage and pumping capacity of the existing WRSP recycled water facility located adjacent to the Roseville Energy Park. The impacts of this expansion are evaluated in this EIR. The analysis of recycled water storage, pumping and distribution assumed the demands of both the WRSP Area and the CSP area, and does not assume a reduction in demand from water conservation measures. This allows for a more conservative approach in sizing required infrastructure facilities. The hydraulic model was run under peak hourly flow conditions. Minimum pipeline diameters were selected to achieve required pressure and velocity criteria.

# Thresholds of Significance

For the purposes of this EIR, a significant impact would occur if the development proposed for the project would do the following:

 Result in or require the construction or expansion of recycled water distribution and storage facilities that would create significant environmental effects.

IMPACT 4.12.2-1	AVAILABILITY OF RECYCLED WATER TO MEET DEMAND AND INSTALLATION OF RECYCLED WATER INFRASTRUCTURE			
Applicable Policies and Regulations	City of Roseville Municipal Code Regional Water Quality Control Board Reclamation Permit			
	CSP	Urban Reserve		
Significance with Policies and Regulations	Less Than Significant	Less Than Significant		
Mitigation Measures: None Required		None Required		
Significance after Mitigation:	Less Than Significant	Less Than Significant		

#### CREEKVIEW SPECIFIC PLAN

Recycled water is a part of the overall water supply strategy for the project area. Recycled water supplied from the PGWWTP would be used for landscape irrigation of parks, schools, publicly -landscaped areas (i.e., roadway medians, paseos), and other landscaped areas in commercial and high-density residential uses within the CSP area. The Master Reclamation Permit and the City of Roseville Municipal Code contain specific requirements and standards associated with the use of recycled water.

#### **Demand**

Irrigation demands vary by month; therefore, supply needs are estimated on a monthly basis with the peak demands occurring in July. The peak demands are compared to the committed recycled water supply, which is equivalent to the average dry weather wastewater flow. Where the committed recycled water supply does not satisfy the recycled water demand in any given month, supplemental water would be required. The committed supply available to serve the CSP area from the PGWWTP is 0.37 mgd, which is equivalent to an available recycled water supply of up to 34.5 AF per month.

As documented in Appendix A of the Creekview Recycled Water Study Final Report (Attachment 4 of Appendix H-2), the annual recycled water demand for the CSP would be 201 AFY. This demand, minus 79 AFY due to reduced demand from significant water conservation measures built into the CSP results in a project irrigation demand of 122 AFY. Water conservation savings are described in Chapter 8, Utilities Plan section of the Specific Plan and in the Creekview Specific Plan Water Conservation Plan, dated November 23, 2010 by HydroScience Engineers (Attachment 3 of Appendix H-2). The CSP Water Conservation Plan contains the calculations of estimated water and recycled water savings resulting from the implementation of the conservation measures identified for inclusion in the Project.

In all months, the committed recycled water supply for the CSP is sufficient to meet projected recycled water demands. Table 4.12.2-2 shows irrigation demands and available recycled water supply on a per month basis.

TABLE 4.12.2-2
IRRIGATION DEMANDS VERSUS RECYCLED WATER SUPPLY

Month	Irrigation Demand (AF)	Committed Recycled Water Supply (AF)	Surplus Supply (AF)	Resultant Supplemental Demand (AF)
January	0	34.5	34.5	N
February	0	34.5	34.5	N
March	1.4	34.5	33.1	N
April	9.1	34.5	25.4	N
May	16.2	34.5	18.3	N
June	22.6	34.5	11.9	N
July	26.0	34.5	8.5	N
August	22.6	34.5	11.9	N

TABLE 4.12.2-2 (CONTINUED) IRRIGATION DEMANDS VERSUS RECYCLED WATER SUPPLY

Month	Irrigation Demand (AF)	Committed Recycled Water Supply (AF)	Surplus Supply (AF)	Resultant Supplemental Demand (AF)
September	16.2	34.5	18.3	N
October	8.0	34.5	26.5	N
November	0	34.5	34.5	N
December	0	34.5	34.5	N
Total (AFY)	122 (rounded)			

NOTE: Irrigation demands account for reductions due to implementation of water conservation measures.

As shown in Table 4.12.2-2, no supplemental water supply would be required to serve the CSP. However to provide a reliable supply, the City has determined that a supplemental irrigation well would be needed for backup to the recycled water supply or for emergency purposes only (e.g., if the wastewater treatment facility were to experience mechanical difficulties affecting its ability to provide recycled water).

#### Infrastructure

Recycled water infrastructure required to serve the CSP would consist of a storage reservoir, pumping facilities, a supplemental groundwater irrigation supply well, and onsite piping. As described in the Creekview Recycled Water Master Plan (Attachment 4 of Appendix H-2), the existing West Roseville Specific Plan recycled water tank and pumping facility (located north of the PGWWTP) would be expanded to serve the CSP area. A preliminary site plan of the expanded tank and pumping facilities is show on Figure 4.12.2-1.

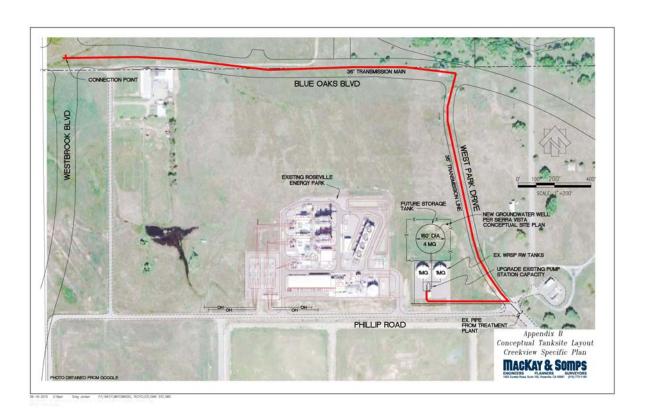
4.12.2

As shown on Figure 4.12.2-1, an additional 0.6 million gallons of recycled water storage would be required at the existing WRSP recycled water storage tank pump station facility. Considering all development areas where the recycled water storage will be accomplished at this facility (WRSP, SVSP and the CSP areas), total storage at this site would be 3.4 million gallons. The current pump station is sized to supply 7,200 gpm. The recently approved SVSP project involves expanding the capacity of the pump station an additional 4,400 gpm (including the SVSP Urban Reserve area) to 11,600 gpm during peak hour delivers. The CSP would increase the pumping station capacity needs by 845 gpm bringing the total pump station capacity needed to 12,445 gpm during peak hour deliveries. The proposed new storage and expanded pump station have been sized based on full recycled water demands, without a reduction due to water conservation efforts, in order to ensure sufficient infrastructure capacities are constructed. A supplemental groundwater irrigation well to backup recycled water supplies during emergency conditions is currently planned for this site as part of the SVSP project. The pumping capacity of this well would be expanded with the CSP project so that it is capable of producing up to 1,250 gpm (1.8) mgd), which slightly exceeds the committed recycled water supply of 1.74 mgd for the SVP and CSP areas served by this facility. The system would be designed such that the supplemental water would be pumped through an air gap directly into the recycled water storage tank.

Recycled water to the CSP area would be delivered through both existing and planned recycled water infrastructure in the WRSP area, and then connected to a new backbone of dedicated recycled water pipelines ranging from 6-inches to 24-inches in diameter within the CSP. These pipelines would be constructed within the street rights-of-way of the CSP area as shown on Figure 2-13 in Section 2, *Project Description*. The recycled water pipelines would be designed to provide capacity to supply development in the Urban Reserve areas.

# LOCATION OF TANK, PUMP STATION, AND WELL FACILITY

FIGURE 4.12.2-1



Potential environmental effects that could occur as result of recycled water supply from the PGWWTP, installation of the storage tank and emergency irrigation well, expansion of the WRSP recycled water pumping station, and construction of distribution system improvements are addressed in Section 4.4 (Air Quality), Section 4.6 (Noise), Section 4.8 (Vegetation and Wildlife), Section 4.12 (Public Utilities), Section 4.13 (Hydrology and Water Quality), Section 4.9 (Cultural Resources), Section 4.14 (Aesthetics and Visual Resources), and Chapter 5, (CEQA Considerations). For a discussion of the potential health effects related to the use of recycled water in areas accessible to the public, refer to Impact 4.10-6 in Section 4.10 (Hazardous Material and Public Safety). The system that is planned will provide adequate recycled water to meet the demands of the proposed project; therefore, the impact of the proposed CSP area on the

capacity of the recycled water system to serve new development is considered less than significant.

# **URBAN RESERVE**

Future development of the Urban Reserve area would require recycled water and recycled water distribution infrastructure, as described for the CSP, as part of the overall water supply strategy. The Urban Reserve would require an estimated 9 AF of recycled water assuming water conservation measures are employed to the levels planned within the CSP. The results of the analysis indicate that there would be sufficient recycled water available for the development of the Urban Reserve<sup>1</sup>. This would be a **less than significant** impact.

Similar to the CSP, a recycled water distribution system would need to be installed in the Urban Reserve area. This system would be connected to the CSP area and WRSP area system and storage tank. The hydraulic analysis for recycled water estimated the need for an additional 0.05 MG (rounded up to 0.1 MG) of recycled water storage and 71 gpm peak hour pumping capacity above that needed for the CSP. This would bring the total storage needed at the WRSP tank and pump station site to 3.5 million gallons. The storage tank to be constructed to serve the CSP area will be planned to include sufficient storage for the Urban Reserve area as well. This would eliminate the need for construction of an additional recycled water storage tank if the Urban Reserve is developed in the future. As indicated above the existing recycled water storage tank site and booster pump station located in the WRSP would be expanded to accommodate the CSP and the Urban Reserve areas.

Should the Urban Reserve develop in the future, the recycled water pumping facility could be further expanded to accommodate recycled water demands within the Urban Reserve area. As explained above in the discussion of the CSP, the impacts related to construction of new recycled water infrastructure and

<sup>&</sup>lt;sup>1</sup> Art O'Brien, Environmental Utilities Department, October 2010.

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public health impacts related to the use of recycled water are discussed in other sections and chapters of this EIR. The system that is planned will provide adequate recycled water to meet the demands of the proposed project; therefore, impact of future development of the Urban Reserve area on the capacity of the recycled water system to serve new development is considered less than significant.

# 4.12.2.5 MITIGATION MEASURES

None Required

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