



## **Staff Report**

---

### INFORMATION REPORT REGARDING GRAY WATER SYSTEM

Honorable Mayor and Council Members:

#### **Summary**

At the July 24, 2007 City Council meeting, Public Works Staff was asked to provide information on the City of Redwood City's Recycled Water Program and potential for the City of Belmont to implement similar measures. Preliminary construction cost to connect to the City of Redwood City's system is included in the evaluation. Other costs, such as connection and use fees that might be imposed by Redwood City or potential resurfacing of roadways after trenching would need to be evaluated if so requested by the Council. Additional measures determined by the City of Redwood City to reduce drinking water consumption are also described. Staff is recommending that the Council review this report and provide further direction to staff.

#### **Background**

In August 2003 the City of Redwood City created the Community Task Force on Recycled Water (Task Force). The objective of the Task Force was to identify ways to reduce drinking water demand by 2,000 acre-feet per year (af/yr) in a financially feasible manner that would give the city alternatives to using recycled water at schools and playgrounds. A critical driving force behind formation of the Task Force was a 1,100 af/yr deficit over the contractual (wholesale) supply of water for the City of Redwood City.

#### **Discussion**

The Task Force made its recommendation to the City of Redwood City Council in March 2004. The recommendations included a series of measures that were recommended and other measures that may reduce potable demand but which required further investigation. The recommended measures were referred to as Alternative TF, which included:

- ❖ A recycled water system that will provide 1710 af/yr of disinfected tertiary recycled water for landscape irrigation and other non-potable uses;
- ❖ Replacing natural grass playing fields with synthetic turf;
- ❖ Continuing to use existing groundwater for landscape irrigation;
- ❖ Additional Water Conservation Measures
  - Water efficient pre-rinse nozzles in dishwashing facilities
  - Evapotranspiration controllers for landscape irrigation systems
  - Hot water recirculation pumps on residential water systems

The currently projected cost for the City of Redwood City Recycled Water Project is \$72 million for Phase I, east of Highway 101 and \$84 million for Phase II to complete the project. The original estimate for the project cost in fall 2003 was \$43.6 million. This increase from the originally estimated cost has created concerns with cost containment and measures have been put in place to create certainty in cost estimates.

The City of Redwood City actively identified and solicited potential users. Potential users were identified through a detailed Market Assessment. The City accepted applications for recycled water service from 25 commercial users for landscape and other commercial uses in 2007. A proposal to sell water to other communities or trade recycled water for potable water is under consideration.

Other potential measures described but not implemented by the City of Redwood City include: measures to control use of water by contractors and in design of new construction; incentive programs to encourage such measures; education to promote conservation; additional use of groundwater; potential water swaps with other water retailers; and new treatment technology.

A table from the 2006 Progress Report for the Redwood City Recycled Water Project showing status of the Task Force’s recommendation is attached.

City of Belmont Public Works Staff prepared a preliminary estimate of cost to extend a water line to connect to the recycled water pipeline at Marine Parkway and Twin Dolphin Drive. The proposed connection would be to provide irrigation to three locations within the City of Belmont. The first location is the Caltrans Highway 101 improvements at Ralston Avenue. The second location is future landscaping on Ralston Avenue and the third location is the City of Belmont Sports Complex. Estimated costs are as follows:

<b>Locations</b>	<b>Approximate Construction Cost (including connection to the recycled water line in Redwood City at Marine Parkway/Twin Dolphin Drive)</b>	<b>Irrigation Cost per Month</b>	<b>Cost Recovery</b>
Location 1 (US 101/Ralston)	\$765,000	\$120 - \$130	>100 years
Location 2 (Ralston/Hiller)	\$880,800	\$110	>100 years
Location 3 (Sports Complex – North and South fields)	\$874,400	\$175/month or less	>100 years

These costs do not include repaving of roadways, some of which have recently been resurfaced or slurry sealed, or fees from the City of Redwood City.

The preliminary cost analysis would not support extension of a recycled water line to provide irrigation to City owned facilities and roadways. It is considered undesirable by community members to have recycled water used on any playfields or other areas that are used by children so this alternative was not considered. Other measures such as replacement of natural grass playing fields with artificial turf may be considered in any future playfield projects.

It is felt that there is limited development in the City of Belmont that would make extensive use of recycled water, as most development in the City of Belmont does not include large, open, irrigated spaces not utilized for recreational purposes. Commercial and industrial uses are also limited. Further evaluation would require a more detailed market analysis.

**Fiscal Impact**

There is no Fiscal impact to this report. If the City should pursue installation of a Recycled Water system there would be a significant cost associated with that program without any funding source.

**Public Contact**

Posting of City Council agenda.

**Recommendation**

It is recommended that the Council not pursue the use of a Gray Water System at this time.

**Alternatives**

1. Take no action
2. Provide direction to City Staff

**Attachments**

- A. Table 3: Status of Task Force Recommendations, Redwood City Recycled Water Project, Progress Report 2006, Redwood City Recycled Water Task Force Recommendations

Respectfully submitted,

\_\_\_\_\_  
Karen Borrmann  
Assistant Public Works Director/  
City Engineer

\_\_\_\_\_  
Raymond E. Davis III, PE PTOE  
Public Works Director

\_\_\_\_\_  
Jack R. Crist  
City Manager

**Staff Contact:**

Karen Borrmann  
Assistant Public Works Director/ City Engineer  
595-7469

[kborrmann@belmont.gov](mailto:kborrmann@belmont.gov)

Exhibit A

**Table 3: Status of Task Force Recommendations**

Task Force Recommendation	Status	2004		2005		2005		2006	
		Estimated Potable Demand Reduction <sup>(a)</sup> (af/yr)	Re-Projected Demand Reduction <sup>(b)</sup> (af/yr)	Actual Demand Reduction Achieved to Date <sup>(c)</sup> (af/yr)	Re-Projected Demand Reduction <sup>(b)</sup> (af/yr)	Actual Demand Reduction Achieved to Date <sup>(c)</sup> (af/yr)	Re-Projected Demand Reduction <sup>(b)</sup> (af/yr)	Actual Demand Reduction Achieved to Date <sup>(c)</sup> (af/yr)	
<b>Recycled Water System</b>									
Alternative TF Alignment <sup>(h)</sup>	In Design	1,687	1,681	26	1,664 - 1,739	33			
Downtown Cinema Dual Plumbing	Closed (2004)	23	0	0	0	0			
<i>Subtotal</i>		<i>1,710</i>	<i>1,681</i>	<i>26</i>	<i>1,663 - 1,739</i>	<i>33</i>			
<b>Synthetic Turf Playing Fields</b>									
Red Morton Park	Awarded	51	51	0	51	0			
Sandpiper Park	In Design	23	23	0	23	0			
Marlin Park	In Design	12	12	0	12	0			
Hawes Park	2008	9	9	0	9	0			
Hoover Park	Complete (2005)	25 <sup>(d)</sup>	9 <sup>(d)</sup>	9 <sup>(d)</sup>	9	9			
Sequoia High School	Complete (2005)	14 <sup>(d)</sup>	6 <sup>(d)</sup>	6 <sup>(d)</sup>	6	6			
Cañada College	2005	16	33	0	33	0			
<i>Subtotal</i>		<i>150</i>	<i>143</i>	<i>15</i>	<i>143</i>	<i>15</i>			
<b>Existing Groundwater Use</b>									
Sequoia High School	Complete (2005)	57	27	27	27	27			
<i>Subtotal</i>		<i>57</i>	<i>27</i>	<i>27</i>	<i>27</i>	<i>27</i>			
<b>Additional Conservation</b>									
Pre-Rinse Spray Nozzles	Complete (2006)	33	40	14	42	42			
ET Controllers	Pilot FY 06/07	46	46	0	46	0			
Hot Water Recirc. Pumps	Pilot FY 06/07	6	6	0	6	0			
<i>Subtotal</i>		<i>85</i>	<i>92</i>	<i>14</i>	<i>94</i>	<i>42</i>			
<b>TOTAL - Alternative TF</b>		<b>2,002</b>	<b>1,943</b>	<b>82<sup>(e)</sup></b>	<b>1,927 - 2,003</b>	<b>117</b>			

Redwood City Recycled Water Project  
 Progress Report 2006  
 Redwood City Recycled Water Task Force Recommendations - Draft Report  
p:\proj\2004\0468005\rec\_recycled\report\_6\_support\evchask\_11\program\supp\part\back\_force\_status\report\0206\_upd\06a2006\_11\progress\_report\_draft.doc

Task Force Recommendation	Status	2004		2005		2006		
		Estimated Potable Demand Reduction <sup>(a)</sup> (af/yr)	Re-Projected Demand Reduction <sup>(b)</sup> (af/yr)	Actual Demand Reduction Achieved to Date <sup>(c)</sup> (af/yr)	Re-Projected Demand Reduction <sup>(b)</sup> (af/yr)	Actual Demand Reduction Achieved to Date <sup>(d)</sup> (af/yr)	Re-Projected Demand Reduction <sup>(b)</sup> (af/yr)	Actual Demand Reduction Achieved to Date <sup>(e)</sup> (af/yr)
<b>Other Potential Measures</b>								
#1: Additional Groundwater Use	Under Evaluation	0	0	0	0	0	0	0
#2: Commercial Toilet Replacement	Ongoing	0	5 - 10 <sup>(f)</sup>	0	5 - 10	3	0	3
#3: Promote Conservation	Ongoing	0	0	0	0	0	0	0
#4: Conservation Ordinance	FY 2006/07	0	0	0	0	0	0	0
#5: Low-Flow Urinal Ordinance	FY 2006/07	0	0	0	0	0	0	0
#6: New Construction Ordinance	Under Evaluation	0	0	0	0	0	0	0
#7: Electronic Eye Faucet Program	Under Evaluation	0	0	0	0	0	0	0
#8: Water Swaps	Regional Efforts	0	0	0	0	0	0	0
#9: Automated Irrigation Technology	Ongoing	0	0	0	0	0	0	0
#10: Treatment Technology	Ongoing	0	0	0	0	0	0	0
<b>TOTAL - Other Potential Measures</b>		<b>0</b>	<b>5 - 10</b>	<b>0</b>	<b>5 - 10</b>	<b>0</b>	<b>5 - 10</b>	<b>3</b>

**Table 3 Notes:**

- (a) The values for the estimated recycled water demands are taken from the Market Assessment that was used as the basis for the Technical Memorandum by Kennedy/Jenks "Recycled Water Alternatives for the Community Task Force on Recycled Water - FINAL (Rev 1)" dated 15 March, 2004. The assumptions for other potable water demand reductions are taken from the Recycled Water Task Force Report, dated March 3, 2004.
- (b) The estimated potable water demand reductions have been updated, where applicable, based on new information made available due to ongoing recycled water market assessment refinement and collection of additional water use data.
- (c) Data as of May 2005.
- (d) The potable demand reduction estimated in Alternative TF for turf replacement at Hoover Park and Sequoia High School was based on theoretical water demands. The updated potable demand reductions provided in 2005 are based on a 14-year average of water meter records provided by City staff. In addition, cumulative water savings due to incremental implementation of the City's 'active' conservation measures is estimated to be 198 af/yr as of Feb. 2005 (see Appendix B)
- (e) Assumes a potable water demand reduction of 25 gallons per day per toilet and 5 days per week occupancy for commercial buildings.
- (f) Data as of July 2006.
- (g) Recycled water demands include First Step Project customers.
- (h)

Redwood City Recycled Water Project

Progress Report 2006

Redwood City Recycled Water Task Force Recommendations - Draft Report

p:\w-proj\2004\68025\_rwc\_recycled\_water\_task\_force\_status\_report\2006\_upd\0611\progress\_report\_draft.doc