

Recycled Water: Opportunities and Challenges

*for the City of Santa Cruz &
Soquel Creek Water District*

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scwd² Community Informational Meeting

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Presentation Outline

- Current programs for rainwater capture, graywater and recycled water.
- Potential recycled water opportunities for the City of Santa Cruz.
- Potential recycled water opportunities for Soquel Creek Water District.
- Summary of the opportunities and challenges.

Santa Cruz and Soquel Creek have ongoing Conservation and Rebate Programs to reduce average daily water demand



- Home water surveys
- Toilet rebates
- Clothes washer rebates
- Turf replacement rebates
- Smart irrigation systems
- Plumbing fixture retrofit ordinances
- Rainwater cistern rebates
- Graywater system rebates

City of Santa Cruz & Soquel Creek Water District are investigating opportunities for recycled water

- City has implemented recycled water use at the wastewater plant
- Possible irrigation at Pasatiempo Golf Course
- Possible irrigation at Seascape Golf Course
- Potential for irrigation at local parks

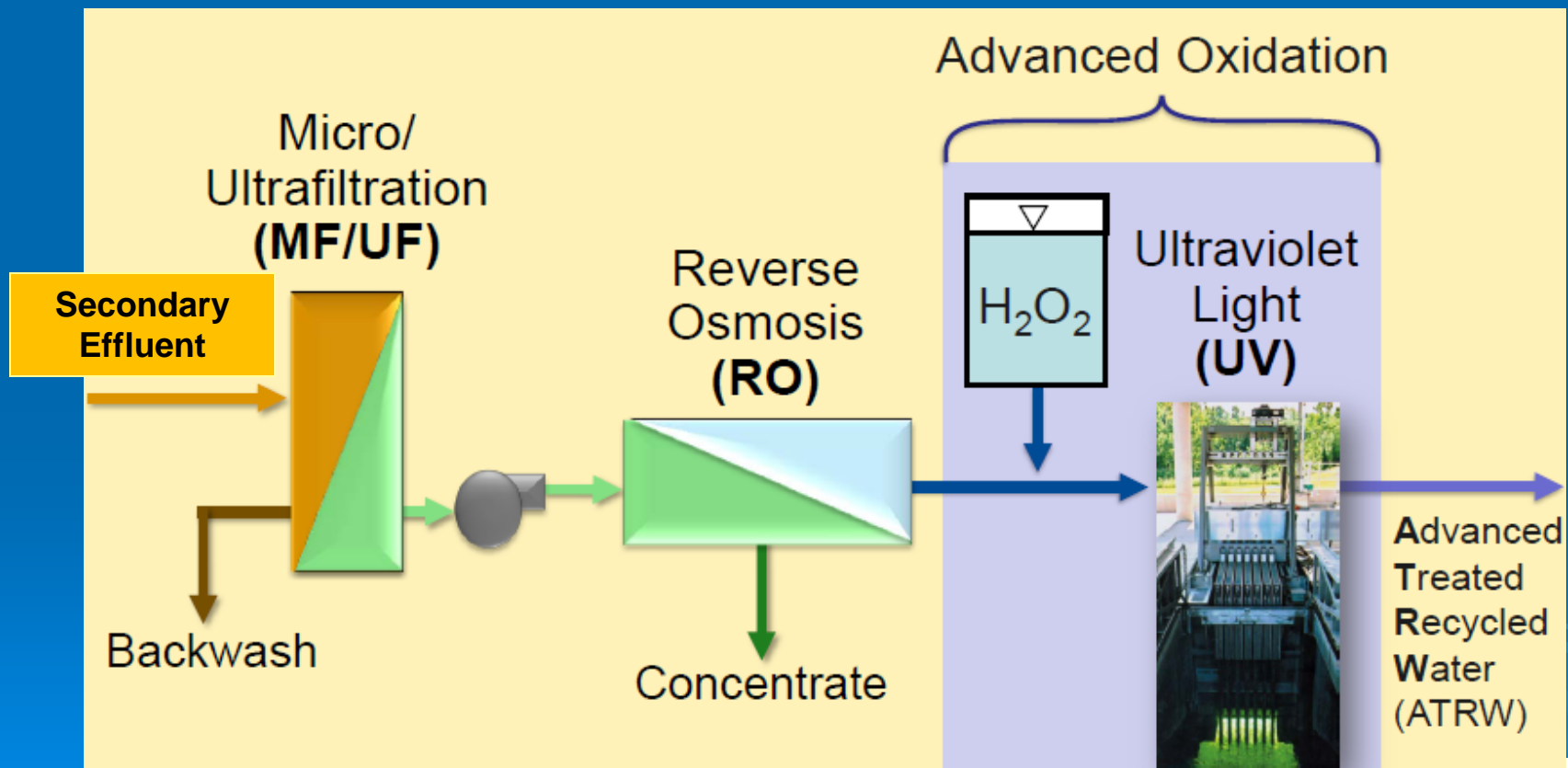


Different uses of recycled water require different levels of treatment

Irrigation

Irrigation/Industrial

Indirect Potable Reuse



City of Santa Cruz WWTF could be a source of recycled water

- Santa Cruz WWTF treats 7 to 10 mgd to “secondary effluent” standards.
- Most of the water is discharged about 2 miles offshore of Mitchell Cove.
- WWTF recycles some water for onsite use.
- WWTF does not currently have the additional treatment processes to produce recycled water for offsite use.



Studies as part of the IWP evaluated recycled water opportunities for Santa Cruz

- The City of Santa Cruz Alternative Water Supply Study (Carollo Engineers, 2000)
- The City of Santa Cruz & Soquel Creek Water District Evaluation of Regional Water Supply Alternatives (Carollo Engineers, 2002)
- Recycled Water opportunities that were evaluated:
 - Direct potable reuse
 - Urban landscape irrigation
 - Agricultural applications for the North Coast
 - Use of recycled water from Scotts Valley District and
 - Use of recycled water for groundwater recharge



Direct Potable Reuse



- Highly treated recycled water would be delivered directly into the potable system.
- Provides potable water supply.
- Saves the costs of a separate recycled water distribution system.
- Would require a new facility to meet treatment requirements.
- This approach is not currently permitted by the CA Department of Health and is not currently being done anywhere in the US.



Urban Landscape Irrigation



- Treated recycled water from WWTF could be delivered for irrigation of golf courses, parks, fields, etc.
- Would require a new processes at the WWTF and a new separate distribution system.
- Limited urban irrigation demands.
- However, does not provide additional potable water supply in a drought.
- During a drought, the City would restrict potable water for irrigation, so this recycled water does not meet the City's drought protection needs.



Irrigation for Agriculture



- Treated recycled water from WWTF could be delivered for irrigation to North Coast farmers in exchange for their groundwater.
- Would require a new processes at the WWTF and new piping to and from the North Coast.
- The groundwater basin is limited and would not provide enough water for drought relief objectives.
- The State Parks Dept. was not interested in participating in a water swap.



Recycled Water from Scotts Valley WD



- Effluent water from Scotts Valley WWTF could be treated for irrigation use at the Pasatiempo Golf Course.
- Requires a satellite reclamation plant (SRP) to meet treatment requirements.
- However, does not free up potable water during drought conditions because the City would restrict potable use for irrigation.
- Feasibility study of this concept is currently being conducted.



Soquel Creek Water District

- The District does not treat or reclaim wastewater
- All wastewater generated within service area is sent to Santa Cruz WWTF.
- General challenges for irrigation applications with recycled water
 - Long geographical distance from WWTP to District boundary (over 5 miles)
 - Limited irrigation market in District
 - District does not serve any agriculture

Studies as part of the IRP evaluated recycled water opportunities for Soquel Creek Water District

- Recent Studies
 - Integrated Resources Plan (ESA, 2006)
 - Water Recycling Facilities Planning Study (Black & Veatch, 2009)
 - Identified opportunities for SRPs



Satellite Reclamation Plants (SRPs) can be used when larger regional systems are not practical

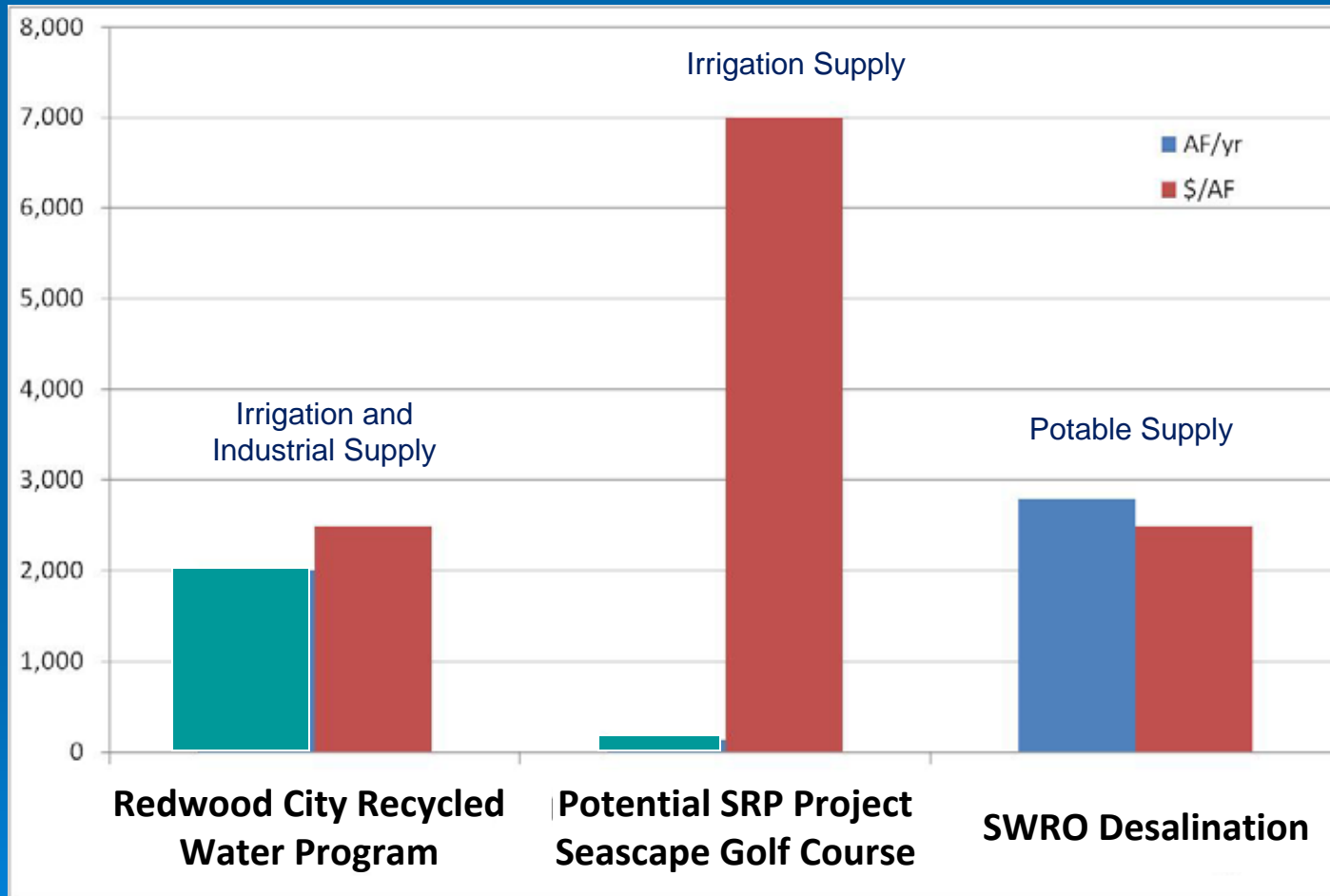
- Newer concept to locally treat and divert wastewater from sewer system
- Small, localized recycled water treatment plant
- District received State Grant to conduct feasibility study of SRPs for recycled water
- Benefits
 - Does not require lengthy distribution system from WWTF
 - Source of wastewater, treatment, and use is all in close proximity to one another

However, SRPs for SqCWD have challenges

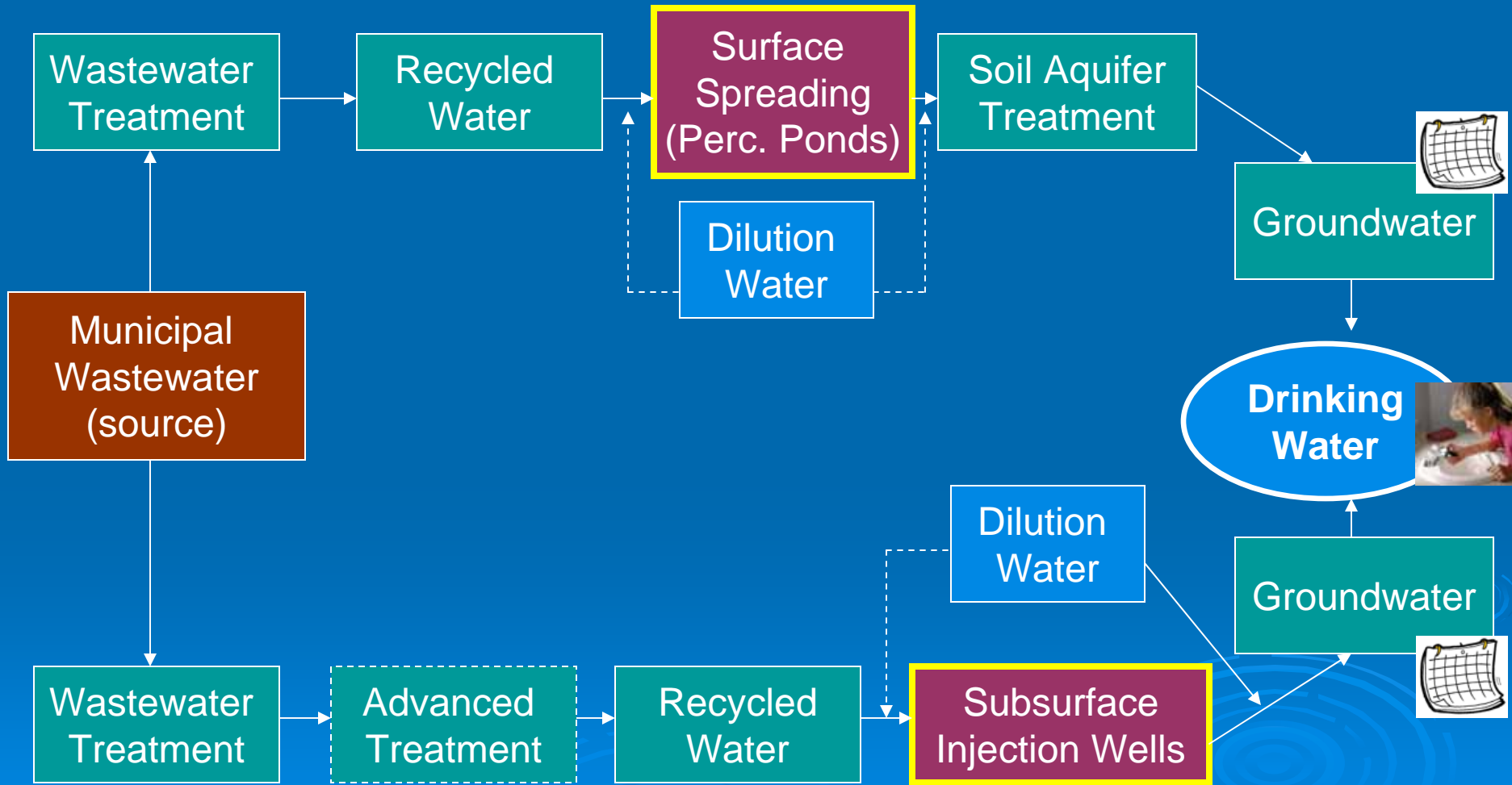


- SRP could be possible at Seascapes Golf Course.
- Overall there are a limited number of potential users in District.
- Effectiveness limited by the volume of wastewater at a specific site.
- Potential users of SRPs are not District customers – would not lessen District potable demands.
- Very expensive per AF produced.

Recycled water cost for irrigation can vary depending on treatment levels and local factors

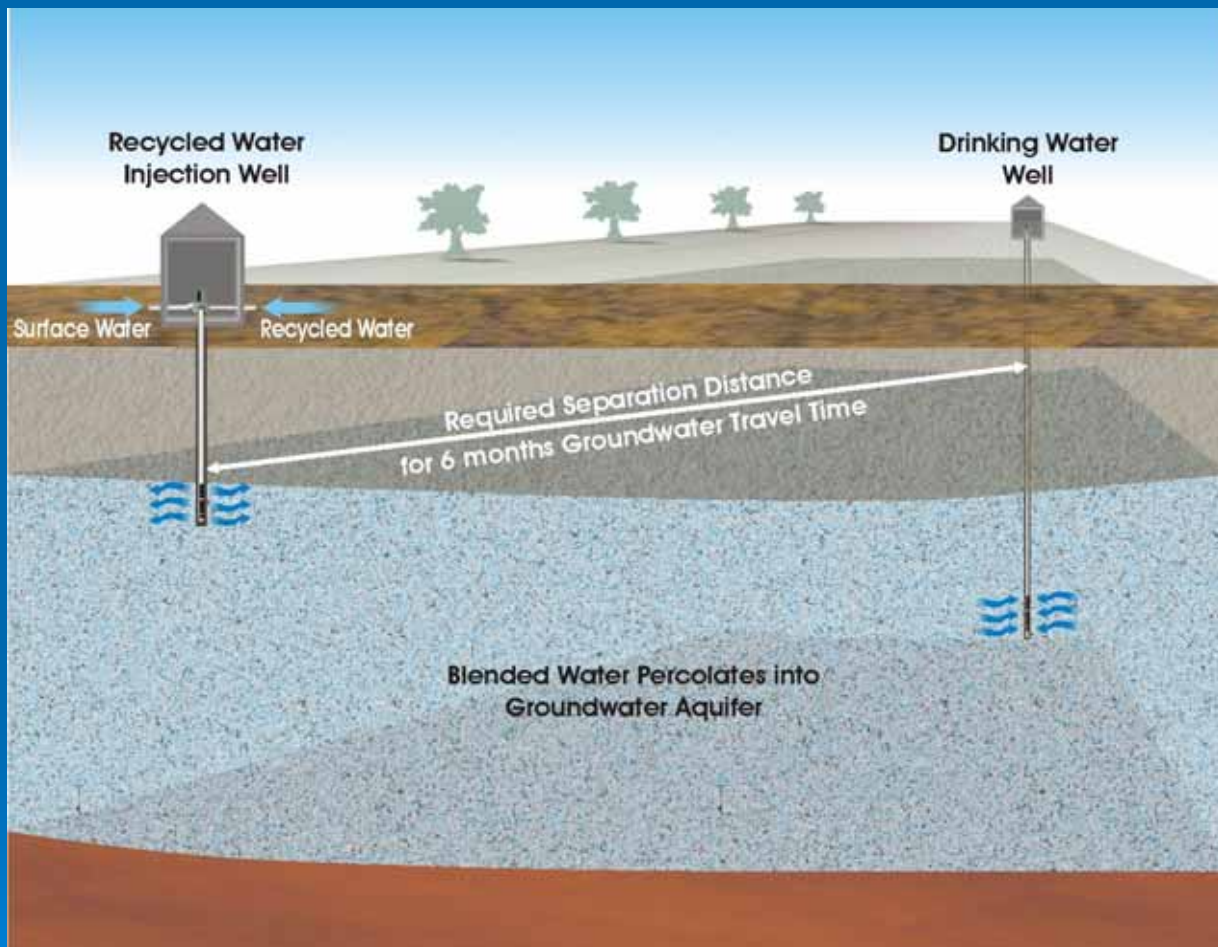


Indirect Potable Reuse through Groundwater Recharge



Groundwater Recharge with Recycled Water (GRRP)

Groundwater Recharge requires 6-month separation distance from neighboring drinking wells



Blending of 50% surface water and 50% recycled water is required for surface spreading or injection.

Groundwater recharge with recycled water is not practical for the City or the District



- GRRP: Replenish overdrafted basin with recycled water via percolation ponds or injection wells
- Numerous injection wells would be needed & local geology is not conducive to high-capacity injection wells.
- Soquel-Aptos basin serves thousands drinking wells. Distance requirements would be difficult.
- Service areas for the City and District are urban making large percolation ponds impractical.
- City and District do not have excess water to meet blending requirements.

Summary

- City and District have active conservation and rebate programs and have evaluated opportunities for recycled water.
- Under current CA regulations, recycled water is not permitted to be directly used as drinking water.
- Recycled water projects could provide irrigation water – but do not offset enough water demand for droughts.
- Groundwater recharge projects are not practical for the City or District.
- City and District will continue to evaluate opportunities for recycled water, but additional potable water supply is needed.

For more information, a white paper on Recycled Water is available at www.scwd2desal.org





Questions ?

