Conceptual-Level Comparison of Water Supply Alternatives

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Presentation Outline

- Overview of Backup Water Supply Opportunities
- Introduction of Recycled Water Options presented in TM 3
- Application of Evaluation Criteria
- Next Steps
Backup Water Supply Opportunities

- TM #1 Desalination Alternatives
  - Mid-County Desalination
  - Deep Water Desalination

- TM #2 Recycled Water Alternatives
  - Mid-County Groundwater Replenishment
  - SC Regional Groundwater Replenishment

- TM #3 Water Transfer Alternatives
  - Water Transfer with existing infrastructure
  - Water Transfer with upgrades to infrastructure

- TM #4 Alternatives Evaluation

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Recycled Water Alternatives

2.a
Mid-County GW Replenishment Project
- 1,500 AFY
- All facilities w/in District Service Area
- GW replenishment and protection from seawater intrusion

2.b
Santa Cruz GW Replenishment Project
- 1,500 AFY (District share of a larger facility)
- Share facilities and costs w/ Santa Cruz
Recycled Water for Groundwater Replenishment

- Advanced treatment, blending and environmental barrier required
- Highly treated water would be injected into GW Basin away from the coast
- Supplemental supply water is then withdrawn from current wells

**Potential Groundwater Recharge Locations:**
- Groundwater Units
  - Purisima AA and TU
- 500-ft separation distance
  - travel time of 6 months to 1 year
- Proposed Sites
  - Anna Jean Cummings Park
  - Soquel High School sports Field
  - Monterey Street Well

*New regulations permit 2 to 6-month separation distance from neighboring wells.*
2.a Mid-County GW Recharge Project

Conceptual Description:
• Source water from local sewer
• Advanced Recycled Water Treatment Facility (ARWTF) at DA Porath Sewer PS
• Proposed injection locations to fill existing depressions in the aquifer
• Estimated underground residence time 6 months – 1 year
• Capital Cost ~$56M, Annual O/M ~1.2M, and Unit Cost ~$2,700 af
Conceptual Description:
• Source water from Santa Cruz WWTP secondary effluent
• Advanced Recycled Water Treatment Facility (ARWTF) in Santa Cruz
• New dedicated 5-mile RW pipeline to District
• Proposed injection locations to fill existing depressions in the aquifer
• Estimated underground residence time 6 months – 1 year
• Capital Cost ~$53M, Annual O/M ~1.2M, and Unit Cost ~$2,600 af
Alternatives Evaluation

Scorecard Approach

- Primary Evaluation Criteria
- Related Sub-Criteria
- Scoring
- Weighting
- Ranking
## Criteria and Sub-Criteria

<table>
<thead>
<tr>
<th>Primary Evaluation Criteria</th>
<th>Proposed Associated Evaluation Sub-Criteria</th>
</tr>
</thead>
</table>
| Water Supply Availability and Quality     | • Amount of water available to meet District Needs  
• Water availability throughout the year and in dry and wet years  
• Amount of treatment or complexity of alternative to provide potable level water quality                                                                                                                                                                                                                                                                                                                                 |
| Supply Impact, Reliability and Flexibility| • Timeliness and impact to protect GW basin and prevent seawater intrusion.  
• Reliability of supply over the long-term (20 year period).  
• Flexibility for expansion and/or adaption to climate change.                                                                                                                                                                                                                                                                                                                                                                          |
| Environmental Permitting Considerations   | • Environmental Issues and anticipated support for the alternative by environmental regulatory agencies  
• Potential environmental benefits in addition to groundwater protection  
• Complexity and/or effort for the permitting process                                                                                                                                                                                                                                                                                                                                 |
| Legal and Implementation Considerations    | • Ability of the District to obtain water rights or regulatory approval for the supplemental supply  
• Complexity of property and right-of-way acquisition for associated facilities and pipelines  
• Dependency on partners or other agencies, where there could be a risk of non-participation  
• Potential for technical innovation and implementation.                                                                                                                                                                                                                                                                                                                                 |
| Customer/ Stakeholder Acceptability and Benefit | • Anticipated support for the alternative by the District’s Customers  
• Potential to provide a higher level of public safety during disaster  
• Potential to provide benefits to other local groundwater users or the broader community                                                                                                                                                                                                                                                                                                                                 |
| Financial and Funding Considerations       | • Potential opportunities for cost-sharing or grant funding  
• Ability of District to finance the proposed alternative                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Project Costs                              | • Relative Capital Cost  
• Relative Operations and Maintenance (O&M) Cost  
• Relative Unit cost of Water ($ per Acre-Foot of supply)                                                                                                                                                                                                                                                                                                                                                                                                 |
Scoring

1 2 3 4 5

- Less Favorable, Less Feasible, or Flawed
- Moderately Favorable, Moderately Feasible, or Neutral
- More Favorable, More Feasible, or Beneficial

TM #4
## Example Scoring of Project Alternatives

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Water Supply Availability</th>
<th>Supply Impact, Reliability and Flexibility</th>
<th>Environmental Permitting Considerations</th>
<th>Detailed Scoring</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Amount</td>
<td>Availability</td>
<td>Treatment/Complexity</td>
<td>Timeliness</td>
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<td>5</td>
<td>2</td>
<td>3</td>
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<tr>
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<tr>
<td><strong>Weighting</strong></td>
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<td>33%</td>
<td>33%</td>
<td>33%</td>
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</tbody>
</table>

Notes: For scoring: 5 = Most Favorable and 1 = Least Favorable

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Next Steps

- Opportunity for board members to conduct individual scoring of criteria
- August 26 Board Workshop
  - Scoring Interactive Exercise
  - Sensitivity Analysis: Cost-Focused, Supply-Focused, Acceptability-Focused, other