

Projects and Management Actions

IWVGA TAC Meeting: 09/05/19

Agenda Item 3c



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Outline

- Overview
- Imported water project
- Recycled water project
- Pumping restrictions
- Conservation
- Brackish Water



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Overview - Projects and Management Actions

- GSP Planned Projects/Management Actions
 - Imported Water
 - Recycled Water
 - Pumping Restrictions
 - Conservation
- GSP Potential Projects/Management Actions
 - Brackish Water Project
 - Other projects proposed during the SGMA planning horizon (2020-2070)



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Overview - Projects and Management Actions

- Goal of projects and management actions
 - Mitigate basin overdraft
 - Mitigate undesirable results
- GSP discussion of project and management actions includes:
 - Description of project and expected benefits
 - Estimated costs
 - Funding and finance strategy
 - Schedule
 - Permitting and regulatory process
 - Circumstances for implementation
 - Public noticing



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Imported Water

- Two potential options
 - Option 1: Partnership with Los Angeles Department of Water & Power (LADWP)
 - Wheeling of exchange water through Los Angeles Aqueduct (LAA)
 - Construct new facilities to convey raw water from LAA
 - Option 2: Partnership with Antelope Valley East Kern Water Agency (AVEK)
 - Wheeling external water supplies through existing AVEK facilities
 - Construct new pipeline to convey treated water from California City to the basin
- Both options require purchase or acquisition of external water rights/supplies
 - State Water Project Table A entitlement
 - Nickel Water
 - North-of-Delta water
 - Banked water
 - Other



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Imported Water – New Infrastructure

- Option 1 (LADWP)
 - Turnout to Los Angeles Aqueduct
 - Steel pipelines
 - Spreading grounds
 - Recovery wells
 - Chlorination facilities
 - Storage tank
- Option 2 (AVEK)
 - Booster pump station(s)
 - Steel pipeline extension from California City
 - Storage tank



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Imported Water - Costs

Assumption: No grant fees available

Option	Annual Imported Water Demand	Capital Costs (Infrastructure)	One-Time Water Supplies Acquisition Cost	Annual O&M Costs	Annual Service Costs ¹	IWVGA Cost per AF (4%) ²	IWVGA Cost per AF (2%) ³
Option 1: LADWP	5,000 AFY	\$55,046,000	\$48,388,000	\$833,000	\$4,260,000	<u>\$2,220</u>	<u>\$1,950</u>
Option 2: AVEK	5,000 AFY	\$177,975,000	\$48,388,000	\$2,280,000	\$5,860,000	<u>\$4,250</u>	<u>\$3,650</u>

Notes

- 1) Annual service costs consist of State Water Project transportation fees (Options 1 and 2), wheeling fees (Options 1 and 2), and treatment (Option 2 only)
- 2) Amortized at a 4% interest rate over 30 years
- 3) Amortized at a 2% interest rate over 30 years



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Imported Water - Costs

Assumption: Grant fees available to cover one-half of capital costs for infrastructure

Option	Annual Imported Water Demand	Capital Costs (Infrastructure)	One-Time Water Supplies Acquisition Cost	Annual O&M Costs	Annual Service Costs ¹	IWVGA Cost per AF (4%) ²	IWVGA Cost per AF (2%) ³
Option 1: LADWP	5,000 AFY	\$27,523,000	\$48,388,000	\$833,000	\$4,260,000	<u>\$1,900</u>	<u>\$1,700</u>
Option 2: AVEK	5,000 AFY	\$88,987,500	\$48,388,000	\$2,280,000	\$5,860,000	<u>\$3,220</u>	<u>\$2,860</u>

Notes

- 1) Annual service costs consist of State Water Project transportation fees (Options 1 and 2), wheeling fees (Options 1 and 2), and treatment (Option 2 only)
- 2) Amortized at a 4% interest rate over 30 years
- 3) Amortized at a 2% interest rate over 30 years



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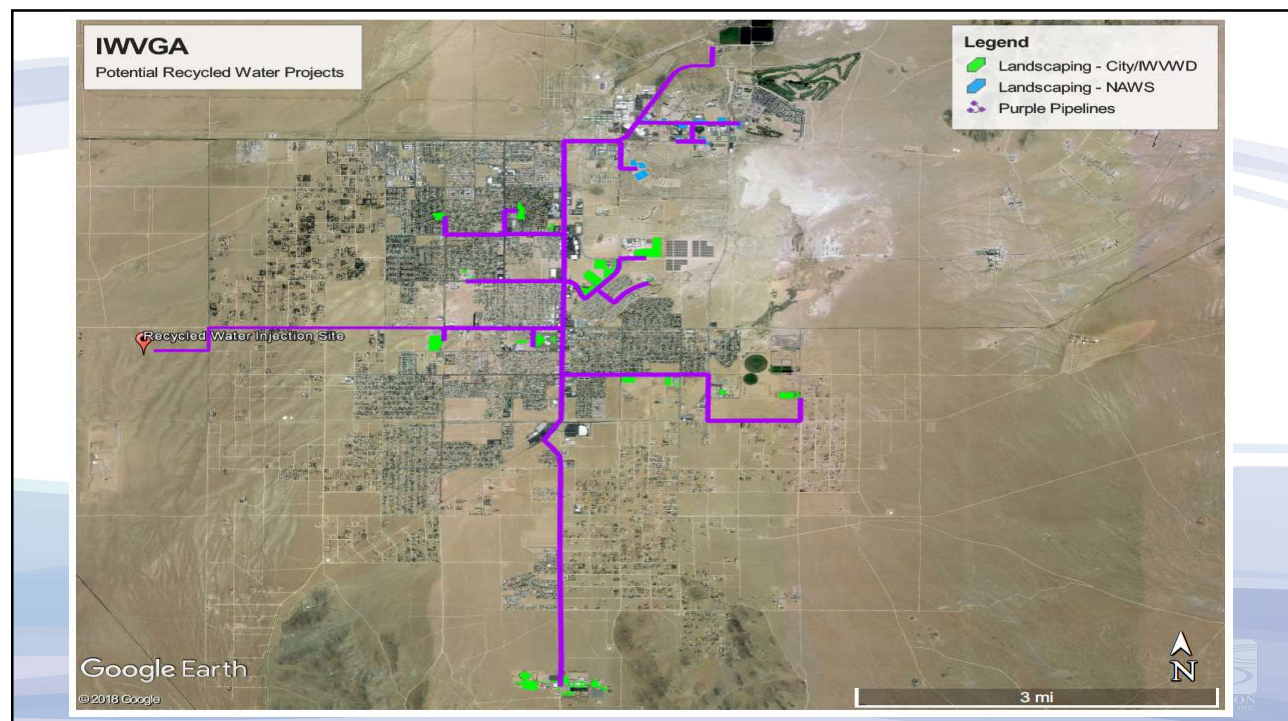
Recycled Water

- Produce tertiary-treated effluent at the Ridgecrest Wastewater Treatment Facility
 - Replace existing beneficial uses (landscape irrigation)
 - New beneficial uses (groundwater recharge) that require advanced treatment
- Project summary
 - Project 1: Non-potable reuse
 - Landscape irrigation of ~125 acres within Ridgecrest, IWVWD service area, and China Lake NAWS
 - Project 1a: Landscape irrigation of ~25 acres at Cerro Coso Community College
 - Project 2: Indirect potable reuse
 - Groundwater recharge via deep injection of advanced-treated effluent from the Ridgecrest WWTF
- Recycled water study assumed commitment to maintaining the Tui Chub habitat
 - Additional recycled water may become available for beneficial use if the Tui Chub are relocated



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Recycled Water – New Infrastructure

- Tertiary treatment facilities (granular media filtration, disinfection)
 - Not included in cost estimates; City's plans to expand and modify the WWTF to tertiary treatment are being conducted independent of the GSP efforts.
- Recycled water distribution system
 - Purple pipelines
 - Booster pump station
 - Site retrofits
 - Recycled water meters, PRVs, and backflow prevention devices
- Advanced treatment facilities (microfiltration, reverse osmosis, advanced oxidation)
- Deep injection well

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Recycled Water - Costs

Assumption: No grant fees available

Option	Annual Recycled Water Demand	Capital Costs (Infrastructure)	Annual O&M Costs	IWVGA Cost per AF (4%) ²	IWVGA Cost per AF (2%) ³
Project 1: Irrigation	930 AFY	\$42,757,200	\$395,500	<u>\$3,090</u>	<u>\$2,480</u>
Project 1a: Cerro Coso ¹	194 AFY	\$10,183,200	\$129,300	<u>\$3,700</u>	<u>\$3,010</u>
Project 2: Recharge	352 AFY	\$22,798,000	\$467,900	<u>\$5,080</u>	<u>\$4,220</u>

Notes

- 1) Provided as an incremental cost subject to completion of Project 1
- 2) Amortized at a 4% interest rate over 30 years
- 3) Amortized at a 2% interest rate over 30 years

Total Annual Recycled Water Demand = 1,476 AFY

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Recycled Water - Costs

Assumption: Grant fees available to cover
one-half of capital costs for infrastructure

Option	Annual Recycled Water Demand	Capital Costs (Infrastructure)	Annual O&M Costs	IWVGA Cost per AF (4%) ²	IWVGA Cost per AF (2%) ³
Project 1: Irrigation	930 AFY	\$21,378,600	\$395,500	<u>\$1,760</u>	<u>\$1,460</u>
Project 1a: Cerro Coso ¹	194 AFY	\$5,091,600	\$129,300	<u>\$2,190</u>	<u>\$1,840</u>
Project 2: Recharge	352 AFY	\$11,399,000	\$467,900	<u>\$3,200</u>	<u>\$2,780</u>

Notes

Total Annual Recycled Water Demand = 1,476 AFY

- 1) Provided as an incremental cost subject to completion of Project 1
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Pumping Restrictions

- Pumping restrictions will be implemented after verifying current pumping and considering basin reasonable beneficial uses
 - Assumptions for pumping restrictions were modeled in Scenario 6.2
 - Specific plans for pumping restrictions are still under consideration
- Dust control mitigation options will need to be evaluated

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Historical Conservation Measures

- IWVWD tiered water rate structure and local water shortage plans
- Adoption of various water conservation ordinances by the IWVWD and City of Ridgecrest
 - Seasonal and daily restrictions on landscape irrigation
 - Prevention of practices that waste water (e.g. wash-down of paved surfaces for aesthetic purposes)
 - Implementation of an approved plant list for landscaping
- Prohibition on recreational fountains or decorative water features
- Distribution of water-conserving fixtures at public events
- Hosting of community outreach events to raise awareness on general conservation practices
- NAWS China Lake conservation efforts



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Potential Opportunities for Additional Conservation

- Municipal/Residential
 - Mandatory seasonal water use restrictions, implemented basin-wide
 - Ex) Water limited for health and safety purposes only
 - Water audits with leak detection and repair efforts in non-SDAC areas
 - Pending review of findings from the Water Audit, Leak Detection & Repair Program for SDACs
 - Rebate program to encourage use of water-conserving devices and fixtures in non-SDAC areas
 - Pending review of findings from the Residential and Commercial Rebates Program for SDACs
 - Basin-wide replacement of evaporative coolers with traditional air-conditioning units
- Agriculture
 - Mandatory installation of single-line, dual-line, or subsurface drip irrigation systems where not currently installed
- Industry
 - Use of recycled or brackish water in Searles Valley Minerals' mineral processes
 - Subject to review and approval from SVM staff



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Brackish Water Project

- Brackish Water Project will be included in the GSP as a potential project still under evaluation
- Project Description draft text provided to Stetson for incorporation into GSP



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Discussion



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