

Cold Springs Water Balance Analysis



COMMUNITY
SERVICES DEPARTMENT



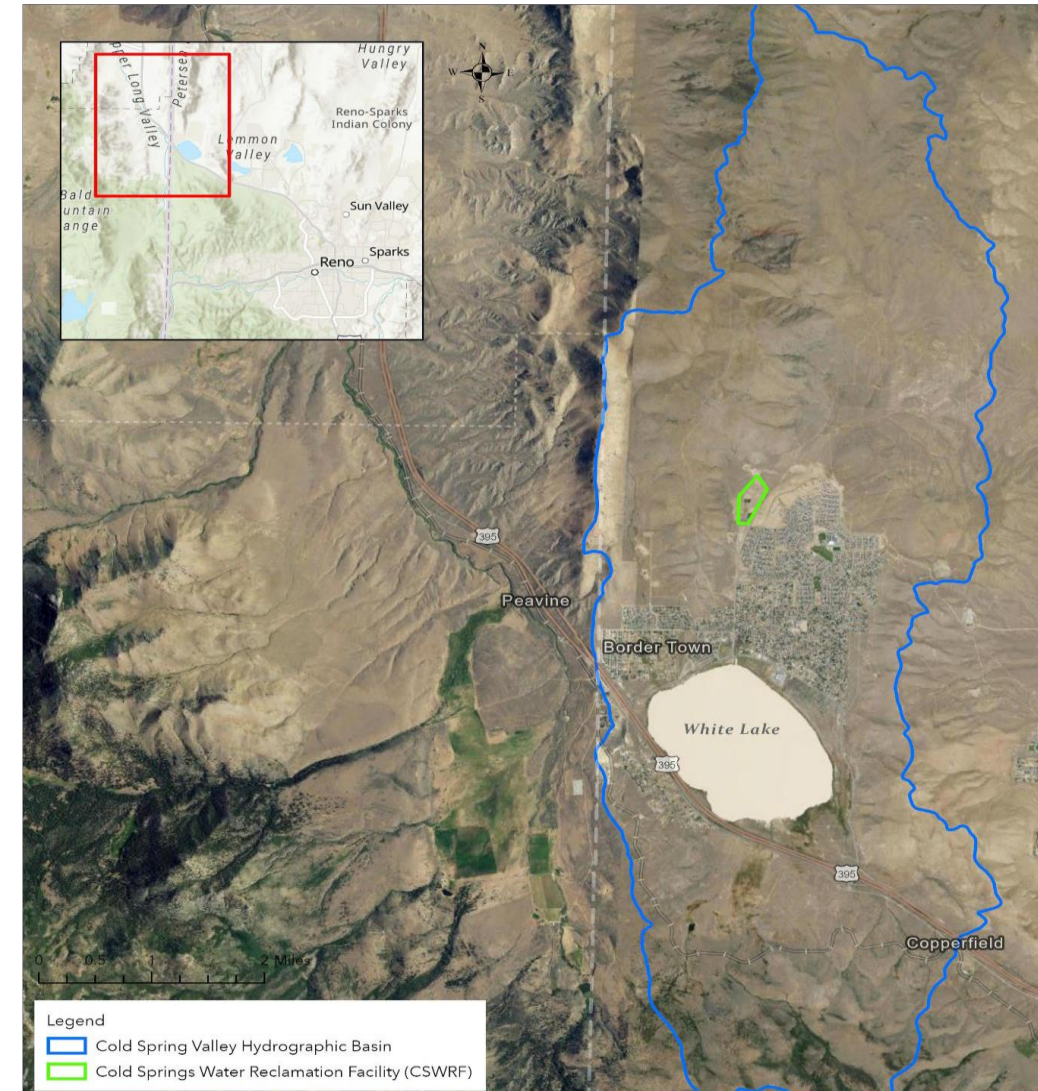
Cold Springs Water Balance Analysis

- ✓ Included in the 2021 Regional Water Management Plan
- ✓ Prioritized by NNWPC in October 2022
- ✓ Funded in the Fiscal Year 2024 WRWC Budget
- ✓ Led and managed by Washoe County
- ✓ Professional consulting firm - Stantec

Cold Springs Valley

– a closed basin with unique conditions

- All water enters the basin as precipitation
- All water exits the basin as evaporation
 - evapotranspiration from plants, trees, etc.
 - surface water evaporation
- Drinking Water
 - domestic wells
 - municipal water purveyor – Great Basin Water
- Wastewater
 - private septic
 - Washoe County
- Stormwater
 - Homeowner’s Associations
 - Washoe County
 - private





Scope

- ✓ **Review and Compile Existing Datasets and Develop Conceptual Water Balance Model**
 - Current surface and groundwater budgets
 - Existing hydrogeologic analysis and groundwater modeling (Piteau Assoc. and Stonegate)
- ✓ **Tool Development - Basin-Wide Linked Surface and Groundwater Flow Model**
 - Determine total volume of groundwater and surface water entering and leaving the basin.
 - Calibrate with historic conditions
 - Assess White Lake flood potential, RIB and well pumping – foundation for other closed basin assessments.
- q **Model Scenarios and Basin Yield Assessment – current activities**
 - Assess impacts of proposed importation, future pumping, runoff to Whites Lake, effluent, recycled water and exportation
- q **Water Quality Analysis**
 - Review basin wide water quality conditions
 - Impacts from septic systems, irrigation recharge, stormwater detention, RIB's
- q **Mitigation Options**
 - Prepare basin wide feasibility responses with initial cost estimates based on findings and model



Evaluation Factors

- Location and timing of new development
- Changes in impervious surface area
 - Types of plants/ground cover – rate of evapotranspiration
 - Stormwater runoff
 - Whites Lake water balance – surface elevation
 - Stormwater detention/retention
- Changes to groundwater pumping, increasing demand
- Changes to wastewater treatment, increasing flows for treatment
- Opportunities for recycled water use/effluent management
 - Optimize use of recycled water to preserve potable water



Next Steps

- Model - technical analysis of different scenario's
 - ❖ Tool for ongoing analysis
 - ❖ Will be refined, updated, and exercised

- Informed decision-making processes
 - ❖ Facility planning and infrastructure needs
 - ❖ Identify opportunities

- Supports regional needs and direction

- Knowledge developed in Cold Springs will be used in other areas

Thank you



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