MARIN WATER

Update on the Early Action Water Supply Projects (Phoenix & Soulajule)

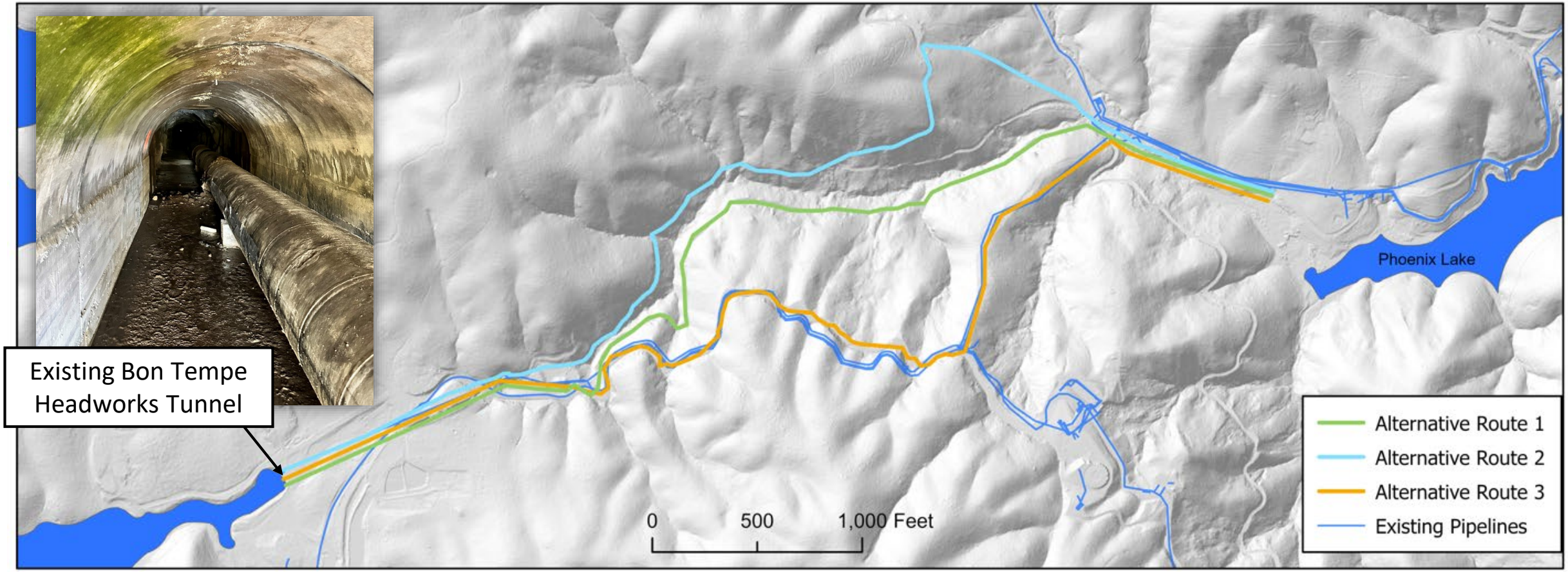
July 21, 2023
Operations Committee

Agenda

- Phoenix-Bon Tempe Connection
- Soulajule Electrification

Phoenix – Bon Tempe Connection

Phoenix Lake to Bon Tempe Proposed Routes



- Improves operational efficiency and would allow for more frequent use of water without intensive system modifications

Phoenix – Bon Tempe Project Status

- Working with consultant to assist with preliminary engineering and multi-benefit feasibility
  - Includes collaboration with County for multi-benefit analysis
  - Water quality, hydrologic, and pumped storage assessments
  - Will bring contract to Board at upcoming meeting for larger contract
- Geotechnical contract in progress
  - Will provide opinion on potential impacts (e.g. landslide risk and erosion concerns) on dam and reservoir for proposed pumping

Phoenix Dam

Phoenix – Bon Tempe Project Status

- Application submitted to PG&E for new service
- Condition assessment completed of Bon Tempe Headworks Tunnel (inlet into Bon Tempe Lake)

Drone operation for condition assessment at Bon Tempe Tunnel

Funding Opportunities

- USBR Small Storage Program
  - Executed agreement with Kennedy Jenks to develop USBR compliant feasibility study
  - Funding opportunity expected to open Fall 2023
- State appropriations

Soulajule Electrification

Soulajule Project Overview

- Improves operability and flexibility of storage facilities
- Would set up improved efficiency for long term operating model
- Technical alternatives analysis underway
  - PG&E Load Study
  - PG&E Sustainable Solutions Turnkey (SST) Analysis
    - Permanent Generator/Fuel cell/Solar options

Soulajule Dam & Pump Station

PGE Sustainable Solutions Turnkey (SST) Alternatives Analyses

- Met with SST team May 15 and May 24 to discuss alternatives
  - Rent one 1MW generator and operate one pump at full flow
  - Install one 1MW generator as permanent power source
    - Still need to pay for fuel, however there are rental savings over time
  - Install 1.5-2MW floating solar
    - Eliminates fuel costs but only operational when sun is shining
  - Batteries/fuel cells

PGE Sustainable Solutions Turnkey (SST) Alternatives Analyses

Current Case (2021)	Complete Electric Upgrade	Modify Generator Usage	Install Permanent Generator	Install Solar Generation	Batteries and Fuel Cells
- 2 generators, fuel and labor	- Use electric service as primary power source	- Rent one 1 MW generator - Operate one pump at full capacity	- Install one 1MW permanent generator - Operate one pump at full capacity	- Install 1.5-2MW floating solar array - Limited hours of operation	Options excluded due to: - Expense - Required footprint - Fuel/ Generation Source
$1.3M/yr	$TBD upgrade	$60,000/year	$1M investment, at least $360k fuel/yr	$2-4M investment, $TBD O&M	
- Diesel/CARB considerations	- Need to complete study	- Diesel/CARB considerations	- Diesel/CARB considerations	- GHG friendly - Mitigates electric/fuel cost increases	

- All costs subject to change
- All alternatives have some ongoing expense

PGE Distribution Planning Alternatives Analyses

- Met with PGE Service Planning 6/28 to discuss alternatives
  - Run one 800hp pump at 100% load at any time
    - Requires upgrade to PGE regulators and fuses
  - Run two 800hp pumps at 100% load at night (9pm – 6am)
    - Requires major PGE upgrades and re-conductoring of system
- Both alternatives assume VFD installation on District pumps
- Will receive formal results from one pump study end of July
  - District will need to confirm commitment to move forward
  - Once committed, project moves into PGE design queue
- Tentative electrification date of late 2025/early 2026

Next Steps

- Contract for electrical engineering technical support in progress
- RFP for discharge pipe design
- Understanding PG&E options and result of load study
- Tentative project completion date of late 2025/early 2026
  - Critical path is PG&E electrification date
- Funding opportunities:
  - State appropriation
  - WRDA