



# **Water Supply Resiliency Roadmap Update**

**BOARD MEETING**

**June 6, 2023**



# Water Supply and Roadmap Update: Overview

- Roadmap Goals, Milestones, Main Elements

- Early Action Projects:

- Stream release automation
- Optimizing water from Sonoma
- Phoenix to Bon Tempe
- Soulajule Electrification
- Conservation

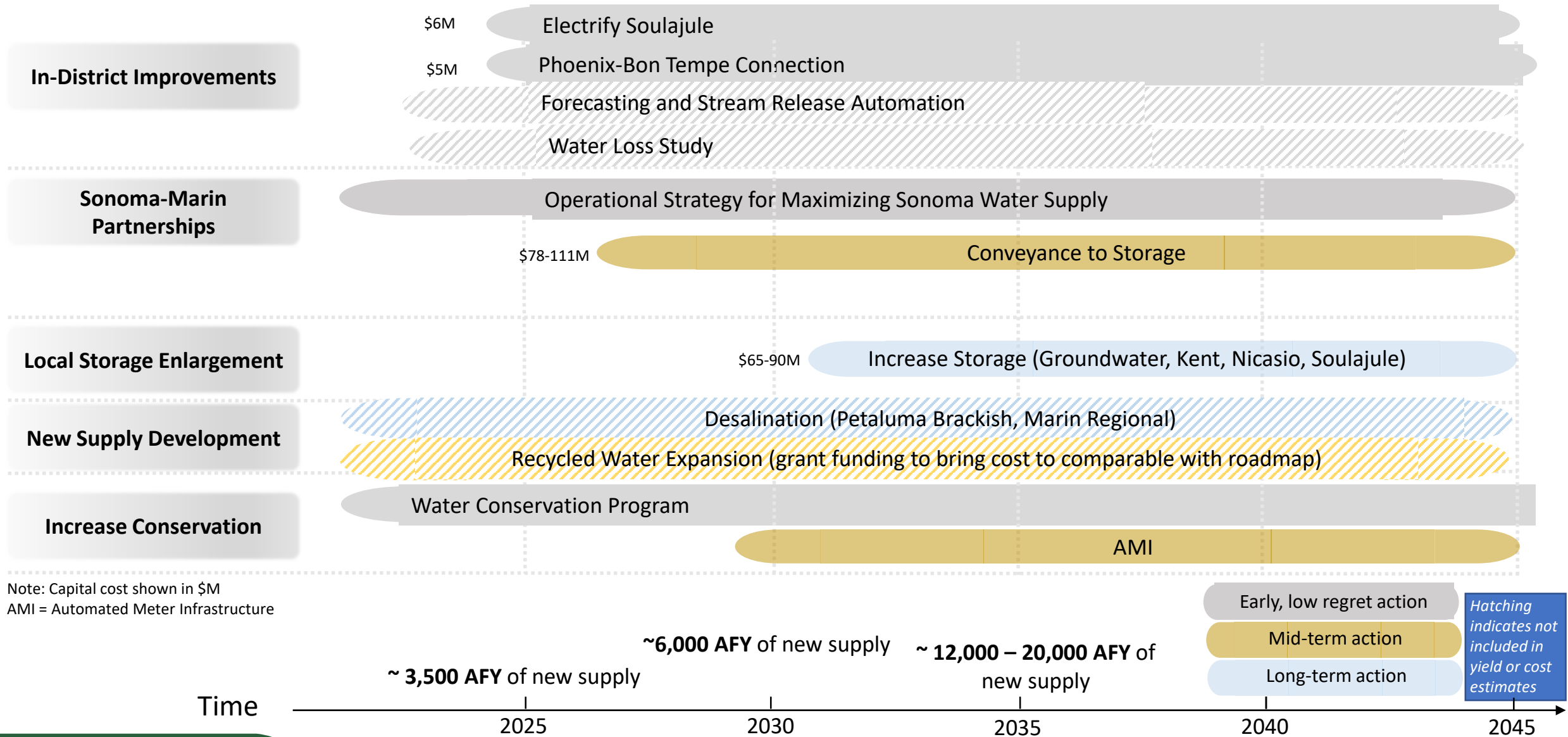
- Longer Term Projects:

- Petaluma Brackish Desalination
- Marin-Sonoma Conveyance
- Storage

- Schedule and Funding Summary

- Next Steps

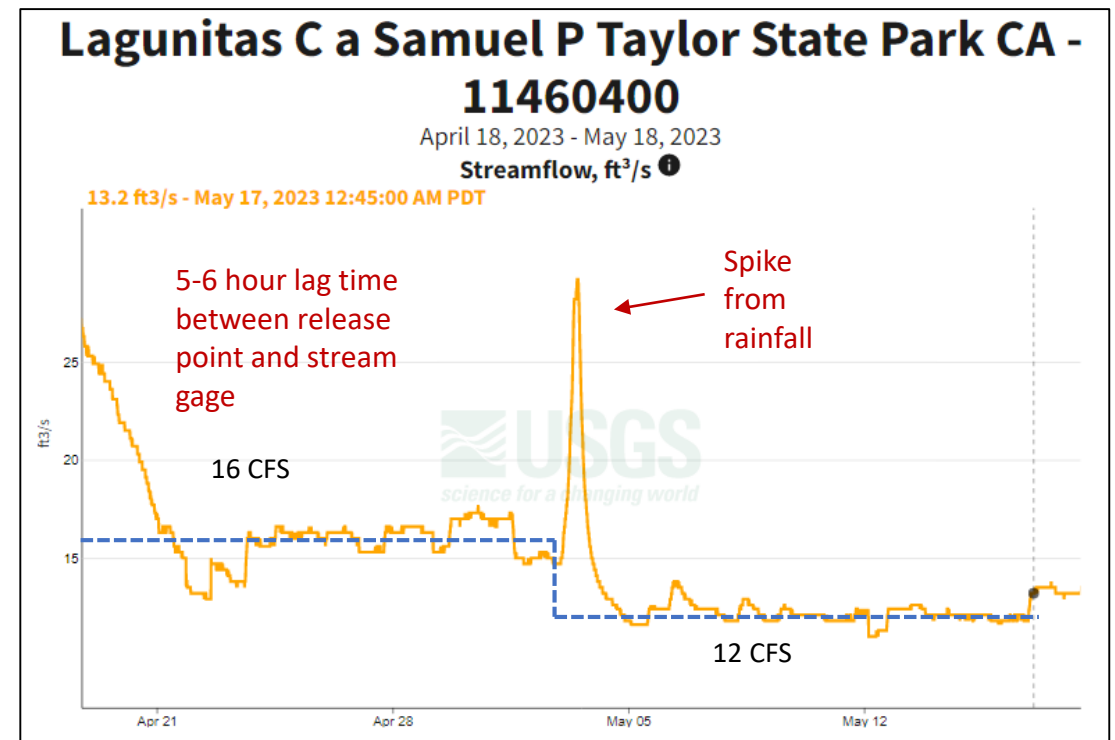
# Roadmap for Integrated Strategy



# Early Actions: Stream Release Automation

## Improved Reservoir Release Accuracy

- Current manual process relies on staff monitoring USGS website
- Automation will improve control of reservoir releases to more closely match downstream streamflow requirements
- Expect modest cumulative water savings





# Early Actions: Stream Release Automation Project Team

- Marin Water:
  - Water Resources – Lucy Croy, Nick Busse
  - Watershed & Fisheries – Jonathan Koehler, Shaun Horne
  - Operations
- Balance Hydrologics:
  - Hydrology – Emma Goodwin, Jonathan Owens, Scott Brown, P.G.
- ESA
  - Andy Collison, Ph.D.
- Lagunitas TAC - Advisory



*Lagunitas Creek Stream gage at Samuel P Taylor State Park*



# Early Actions: Stream Release Automation Project Elements

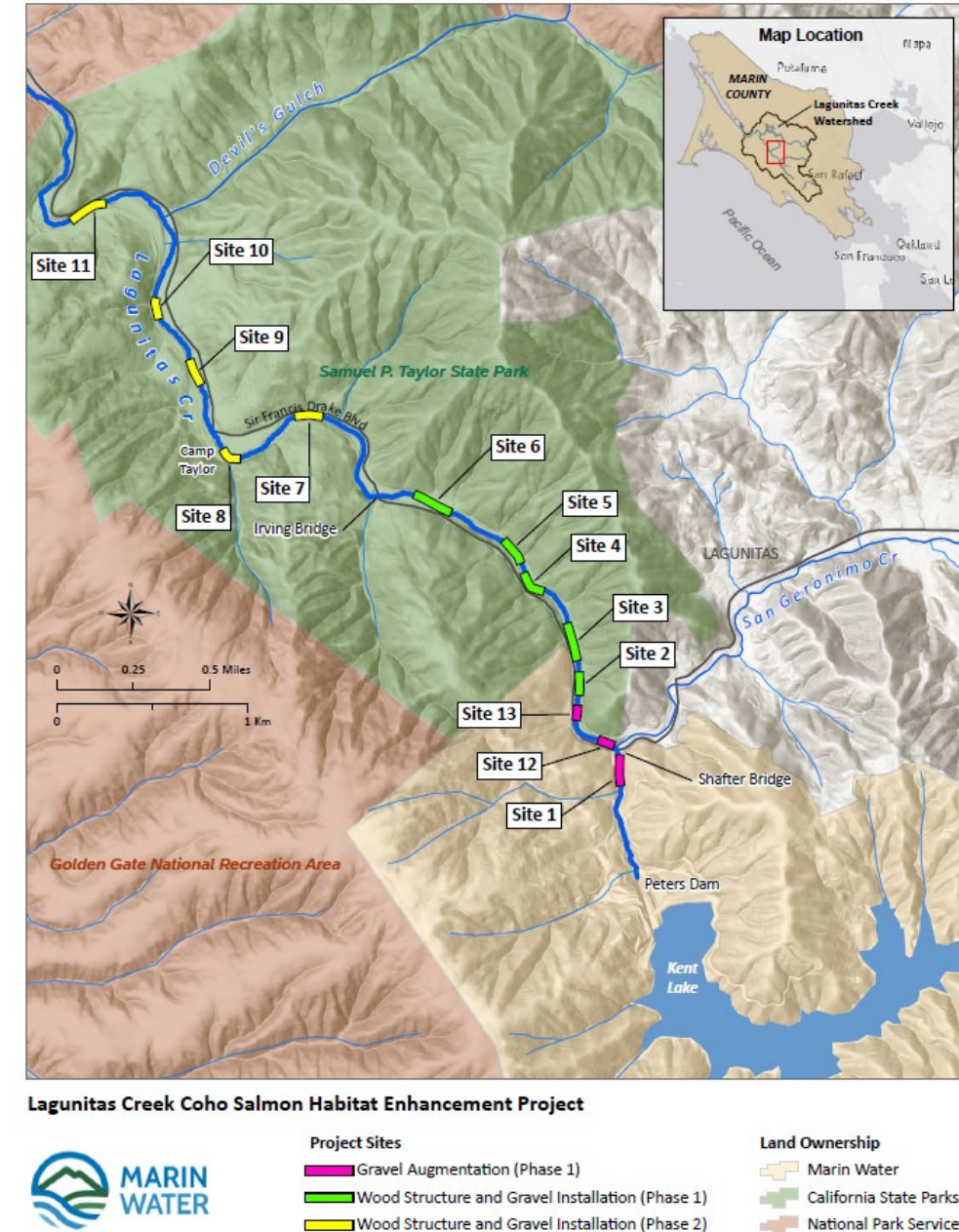
- Capture USGS streamflow data to District's SCADA system
  - Install physical equipment on site: cabinet, power, and communication
- Develop control algorithm for release valve
- Install an additional stream gage near confluence with San Geronimo Creek





# Early Actions: Stream Release Automation Coordination

- Collaborate with USGS to capture data
- Coordinate with State Parks for installation of equipment
- Coordination of new stream gage location with existing and planned work on Lagunitas creek
- Coordinate and communicate regularly with Lagunitas TAC



# Project Schedule & Next Steps

- ✓ Initial briefing to Lagunitas Technical Advisory Committee June 2, 2023
- Install new stream gage by Fall 2023
- USGS data to SCADA and valve control by late Fall 2023
- Develop rating curve through water year 2024
- Project completion late 2024

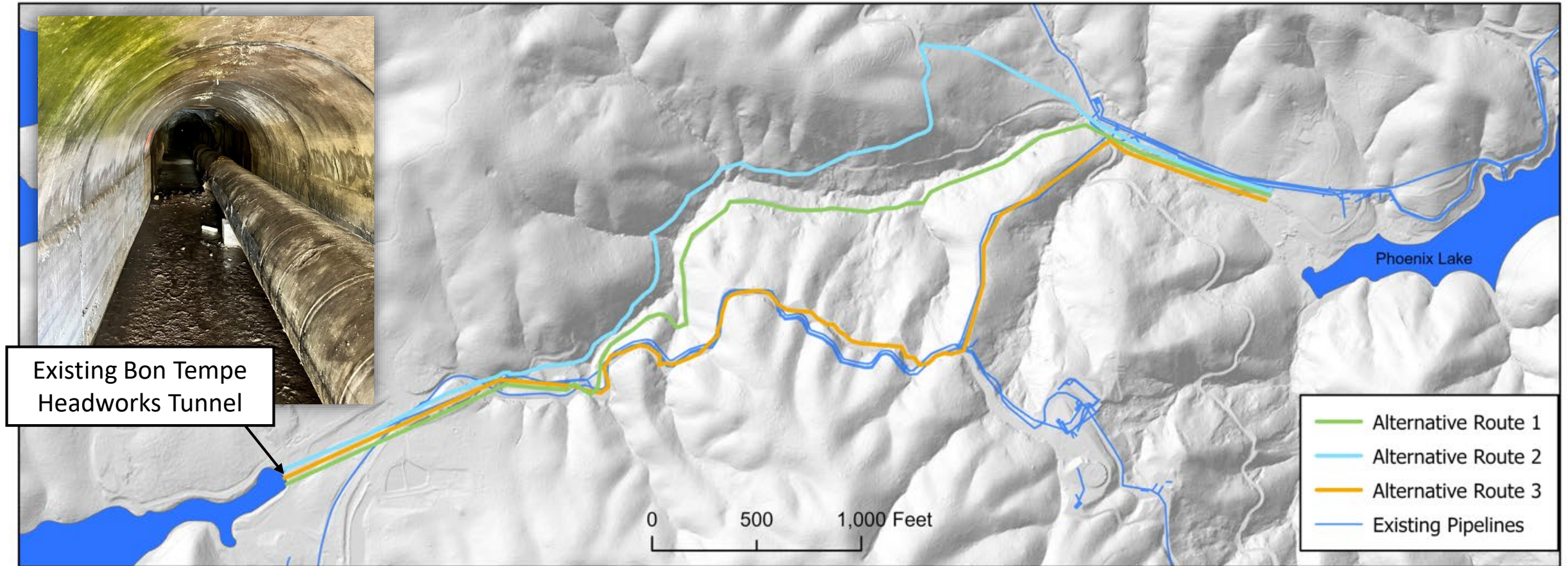


# Early Actions: Optimizing Supplemental Water

- Develop strategy for optimizing supplemental water
- Current front loading strategy - maximum flow July ~ Nov, then continue or adjust flow based on local reservoir levels, Sonoma reservoir levels, & NOAA seasonal forecast
  - Goal – Identify what conditions (reservoir level, forecast, availability of water) are the best indicators for the purchase of additional water that minimizes local reservoir spills and maximizes local reservoir storage level.
  - Dynamic modelling of system supply and demand over a wide range of conditions and over longer time period to understand tradeoffs that will lead to a selection of a strategy that most closely meets the goal.
  - Funding – CIP funds for modelling effort, operating budget and reserves (for purchase of water above take or pay minimum).
  - Schedule – Woodard & Curran contract amendment June 6

# Early Actions: Phoenix Lake to Bon Tempe Reservoir

# 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

- Met with County regarding multi-benefit project
  - Preparing MOU re project collaboration
- In process of hiring consultant to assist with multi-benefit feasibility and other required studies (e.g. geotechnical, hydrologic, etc)
- Submitted application in to PG&E for new service
- Funding opportunities:
  - USBR Small Storage Grant
  - WRDA

# **Early Actions: Electrification of Soulajule Pump Station**

# Soulajule Project Overview

- Storage capacity: 10,572 acre feet
- Improves operability and flexibility of storage facilities
- Would set up improved efficiency for long term operating model



*Soulajule Dam & Pump Station*



# Soulajule Project Status

- Technical alternatives analysis underway
  - PG&E Load Study
  - PG&E Sustainable Solutions Turnkey (SST) Analysis
    - Permanent Generator/Fuel cell/Solar options
- RFP for electrical engineering technical support
- Project timing largely based on PG&E
  - Load study to begin in July and take X months
- Funding opportunities:
  - WRDA
  - Other grants

# Early Actions: Conservation

# SWSA Water Conservation Element

- Natural replacement of water using appliances with newer high efficiency devices due to building code, plumbing code, and other regulatory requirements.
- Incentives include, but not limited to:
  - AMI Leak Letters: 1,250 notifications/year (increase will correspond with new AMI installations)
  - Non-Functional Turf Conversion: 70,000 sqft/year
  - Turf Conversion: 100,000 sqft /year
  - Rain Barrels: 15,000 gallons/year
  - Pool Covers: 90 covers/year
  - Laundry to Landscape Graywater Kits: 40 kits/year
  - Conservation Assistance Program: 500 site visits/year
  - SMART Irrigation Controllers: 100 controllers/year

Near-term incentive program designed based on best available technology.



# Summary of Water Efficiency Code and Regulations

- Staff proposal to expand the Graywater Ordinance to include options to install low water use plant material, rainwater harvesting, or use recycled water.
  - Outreach to Town/Cities and Developers to notify them of change once adopted
- Removing easement requirement for Turf Conversion Rebate
- Consider revision to Non-Functional Turf Ordinance to expedite conversion of existing NFT

# Water Efficiency Outreach: Summary of recent/ongoing activity

Since February 1:

- **67** Social media posts
- **17** Mentions in E-News
- **8** Distinct callouts in spring & summer On the Waterfront
- **2** earned media occurrences highlighting programs
- **7** weekend outreach events



*"With the help of rebates from Marin Water, he installed a 410-gallon rainwater storage tank, a Flume leak detector and a Rachio smart irrigation controller for his new irrigation system."*

# Water Loss Reduction Program

- WCE Annual Target: 280AF in 2045 (11.2 AF/yr)
- Current Status:
  - 2022 Real Loss: 19.65 gallons/ connection
  - Technical Assistance and Gap Analysis by E-Source a solutions based data science firm with experience in Water Loss analysis and strategy
  - Consider what role technology can play in improving water loss for Marin Water:
    - Use of satellite imaging systems to permanent acoustic sensors
  - Internal Water Loss Team:
    - Water Efficiency, Operations, Water Resources, Finance, Engineering Planning
  - Schedule:
    - Internal meeting and data collection: June/ July 2023
    - Draft Technical Assistance and Gap Analysis: Late Summer 2023
    - Final Technical Assistance and Gap Analysis: Fall 2023

# Longer Term Actions



# Longer Term Actions: Petaluma River Brackish Desalination

- ✓ Develop a regional coalition to investigate feasibility
  - MOU With Petaluma - May 2023
- Petaluma conducting preliminary evaluation of groundwater yield
- Feasibility study to confirm a number of assumptions that were made in developing the project concept:
  - Confirm groundwater yield (pumping capacity)
  - Explore open intake as a viable backup to groundwater well intake
  - Confirm source water quality TDS and trace compounds
  - Develop finished water quality specification (establishes complexity of treatment & affects both CIP and O&M cost)
  - Review brine disposal options and identify gaps for studies to support brine disposal options
  - Develop revised feasibility, cost and schedule report
- Feasibility Schedule
  - Develop RFP for technical support – April-July 2023
  - Begin Feasibility – August 2023
- Funding – Request for \$200k in USBR grant funding with \$250k in match from Roadmap Implementation/pre-design funds

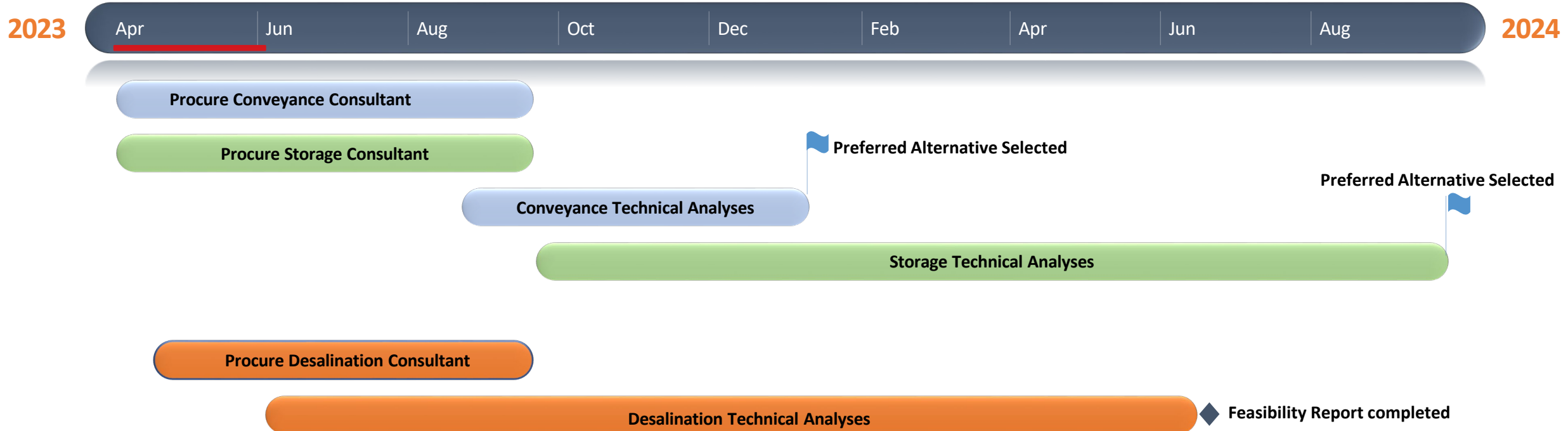
# Longer Term Actions: Conveyance of Supplemental Water to Storage

- Construction of conveyance improvements between the SCWA system and Marin Water \$111M - \$150M / 4,000-6,000 AFY
- Pre-design work to further develop:
  - Project alternative analysis and selection
  - Understanding relative cost-benefits of dedicated conveyance to storage to allow selection between options
  - Determine optimum capacity/sizing of selected conveyance option
  - Hydraulic analysis for pump station sizing and siting, recommend pipeline alignment, ROW needs, permits, cost estimate and schedule
  - Design to support CEQA/NEPA
- Parallel task for staff to work with Sonoma and contractors to engage, inform and build support for this effort
- Schedule:
  - ✓ Develop RFP for technical support April - July 2023
  - ✓ RFP issued 5/24
  - Begin alternative analysis ~August/Sept 2023
- Funding – Included in proposed budget / apply for grants

# Longer Term Actions: Local Storage

- Develop an additional 20 TAF of storage (including potential smaller volume increases by raising spillways)
- Pre-Design work to:
  - Develop project alternative analysis and selection
  - Review hydrology, geotech and selection of reservoir (KENT/NICASIO/SOULAJULE) and scale of enlargement
  - Model and analyze stream flows and impacts/benefits to creek/fishery of various options
  - Discussion with State Water Resources Control Board, National Marine Fishery Service, CDFW and other resource agencies/stakeholders
  - Design to support CEQA/NEPA
- Schedule
  - ✓ Develop RFP for technical analysis – April/May 2023
  - ✓ RFP issued 5/24
  - ✓ Preliminary discussions with SWRCB
    - Begin alternative analysis – Sept 2023
- Funding – Grant funding and proposed budget

# Longer Term Actions: Alternative Analysis Schedule





# Longer Term Actions: Consultant Procurement Schedule

Consultants Onboard  
Sep 19  
2023

2023

Apr May Jun Jul Aug Sep

Petaluma  
Brackish  
Desalination

Draft RFP

Consultant Outreach

Assemble Data

Preliminary Water Yield Investigation

◆ Publish RFP

◆ Respond to RFIs

◆ Receive Proposals

◆ Interview

◆ Select Consultant

Negotiations

● Board approval

Conveyance

Draft RFP

Consultant Outreach

Assemble Data

◆ Publish RFP

◆ Respond to RFIs

◆ Site visit

◆ Select Consultant

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Storage

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◆ Select Consultant

Negotiations

● Board approval

# Roadmap Grant Funding

- Awarded \$2M in 2022 - DWR Urban and Multibenefit Drought Relief Grant
  - Covers all of Jacobs costs for the Strategic Water Supply Assessment
  - Remaining grant funding ~\$1.3M eligible to support Roadmap
- Water Resources Development Act (WRDA) - \$28M

# Roadmap Grant Funding Applications

OPPORTUNITY	FUNDER	FUNDER PRIORITIES	APPLICATION DATE	MATCHING PROJECT DESCRIPTION	PREREQUISITE	MET?	FUNDS REQUESTED	MATCH REQUIREMENT %
Local Water Supply Storage Projects	DWR	Water Supply	1/9/2023	Three projects: recycled water local storage enhancement, and winter water conveyance	UWMP Compliance	YES	\$53,000,000	50
Desal Feasibility Study	USBR	Desalination	2/28/2023	Exploring new brackish desal in Petaluma	None	N/A	\$200,000	50
Local Storage Supply Enhancement	USBR	Environmental + Water Supply	3/28/2023	Evaluating increasing storage locally	None	N/A	662,000	50
Small Storage Program	USBR	Increases surface or groundwater storage, regional benefit	Fall 2023	Phoenix to Bon Tempe	Feasibility Study	<i>In Progress</i>	TBD	75

# Summary Table – Preliminary Funding Schedule

	\$(Millions)				
* Not a line item in budget	2024	2025	2026	2027	Total
Soulajule Electrification	\$0.5	\$3.5	\$3.2	-	\$7.2
Phoenix to Bon Tempe	\$0.5	\$1.7	\$2	\$1	\$5.2
Optimize SCWA*	\$0.3	-	-	-	\$0.3
Stream Flow Automation*	\$0.1	-	-	-	\$0.1
Water Loss*	\$0.1	-	-	-	\$0.1
Conservation	\$1.7	\$1.7	\$1.7	\$1.7	\$6.8
AMI	\$0	\$0	\$0	\$2.5	\$2.5
Petaluma Brackish Desal	\$0.25	\$1	\$0.5	-	\$1.75
Marin – Sonoma Options	\$0.5	\$1	\$2	\$1	\$4.5
Increase Storage	\$1	\$2	\$2	\$1	\$6
Total	\$4.95	\$10.9	\$11.4	\$7.2	\$34.45



# Next Steps

- Continue implementation of Early Action projects
- Facilitate and Coordinate RFP process –
  - Respond to requests for information
  - Plan and coordinate site visits for consultants responding to RFPs for Marin Sonoma Options and increasing storage
- Participate in preliminary yield analysis for Petaluma Brackish Desalination Feasibility
- Continue to track and pursue grants to support roadmap implementation
- Ongoing routine updates to board on progress and status of work