



— BUREAU OF —  
RECLAMATION

# Verde Reservoirs Sediment Mitigation Project (VRSMP)

Stakeholder Meeting  
November 16, 2023

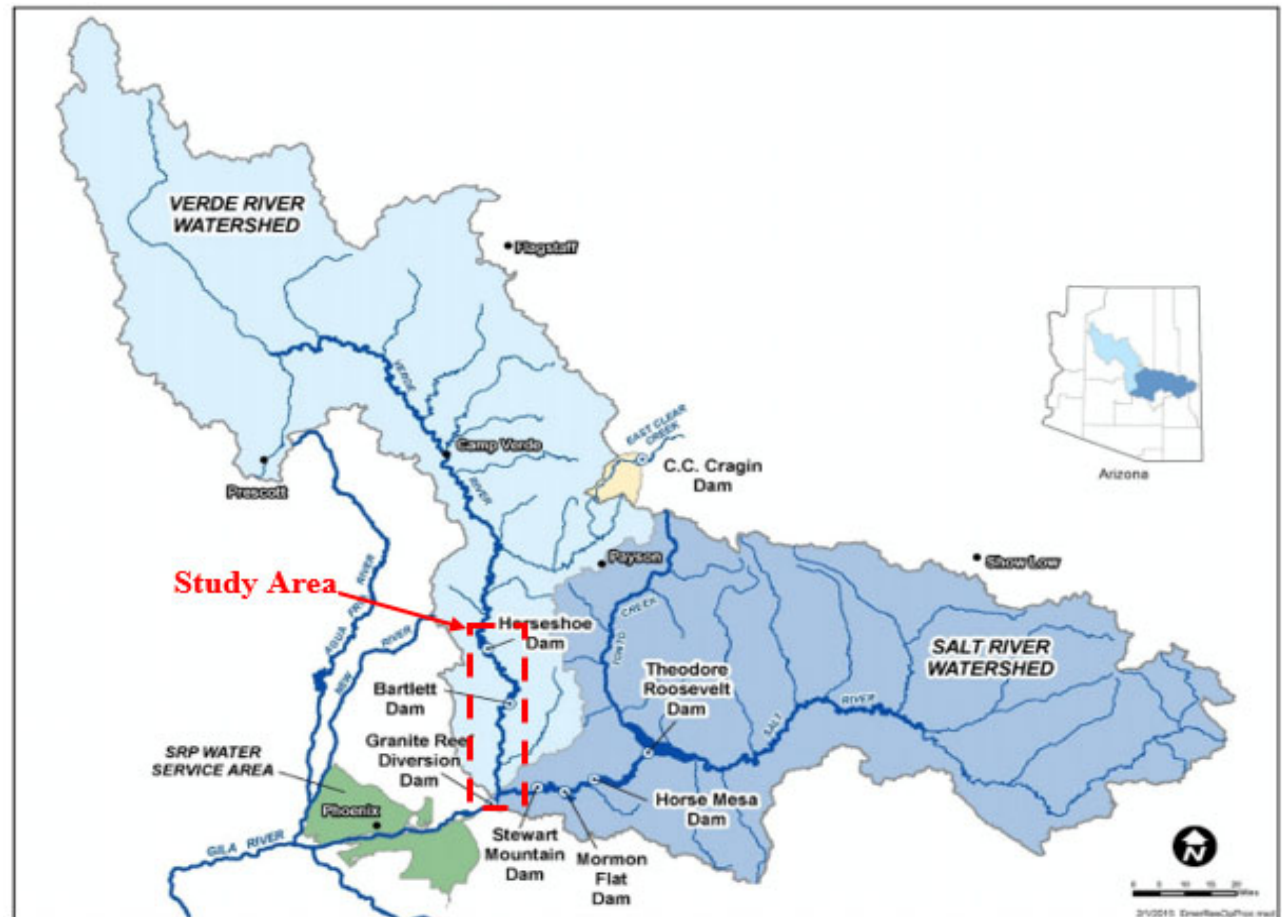
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- Welcome and opening remarks
- Overview of the Salt River Federal Reclamation Project
- Appraisal study overview
- Feasibility study process
- Feasibility study timeline
- Opportunities for engagement
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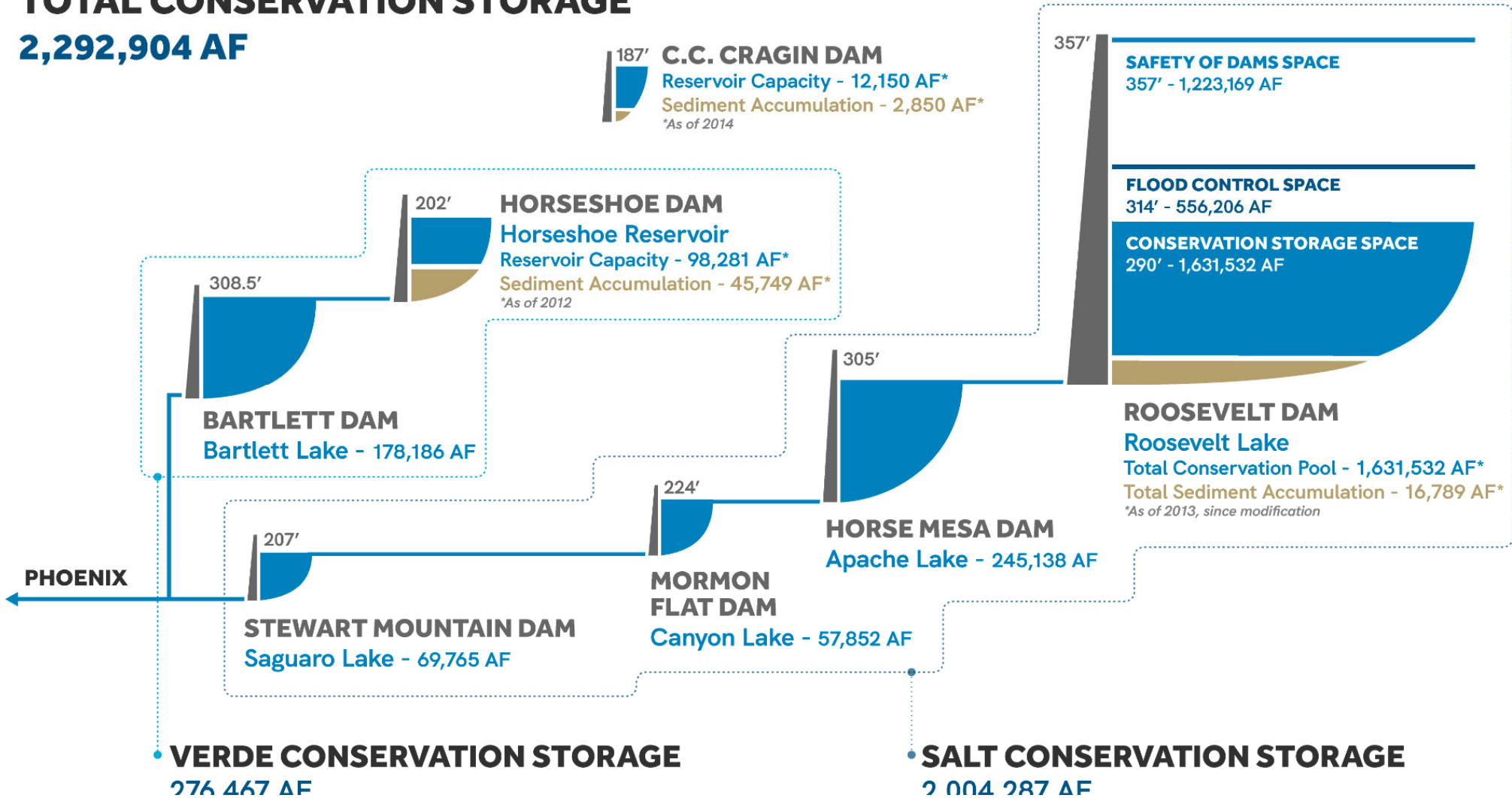
# Salt River Federal Reclamation Project (SRFRP)

- Consists of 6 dams on the Salt and Verde Rivers and one diversion dam
- Operated and maintained by the Salt River Project
- Focus on the Verde River Reservoirs

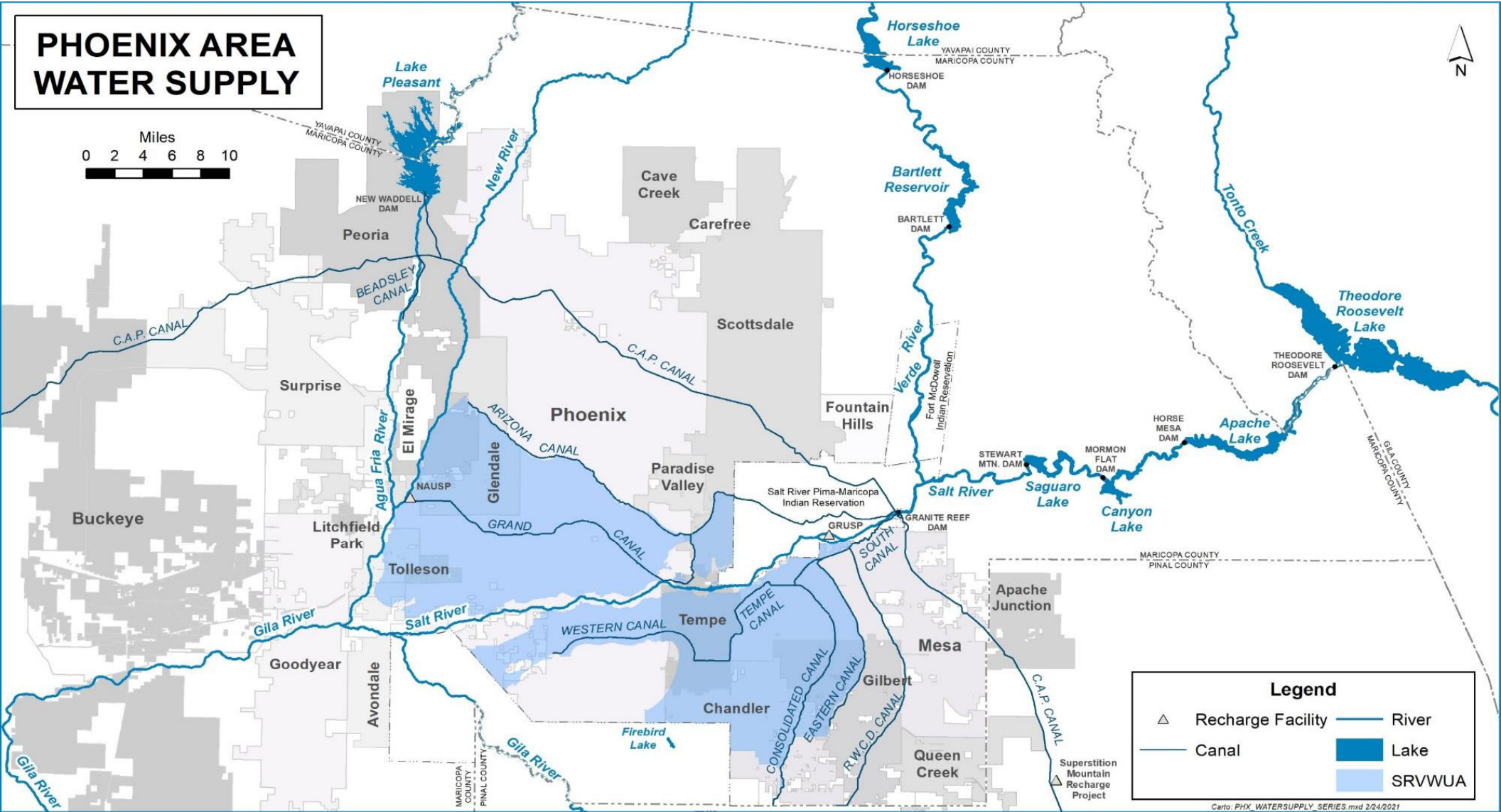
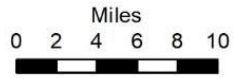


# SRP Reservoir System

**TOTAL CONSERVATION STORAGE**  
**2,292,904 AF**



# PHOENIX AREA WATER SUPPLY

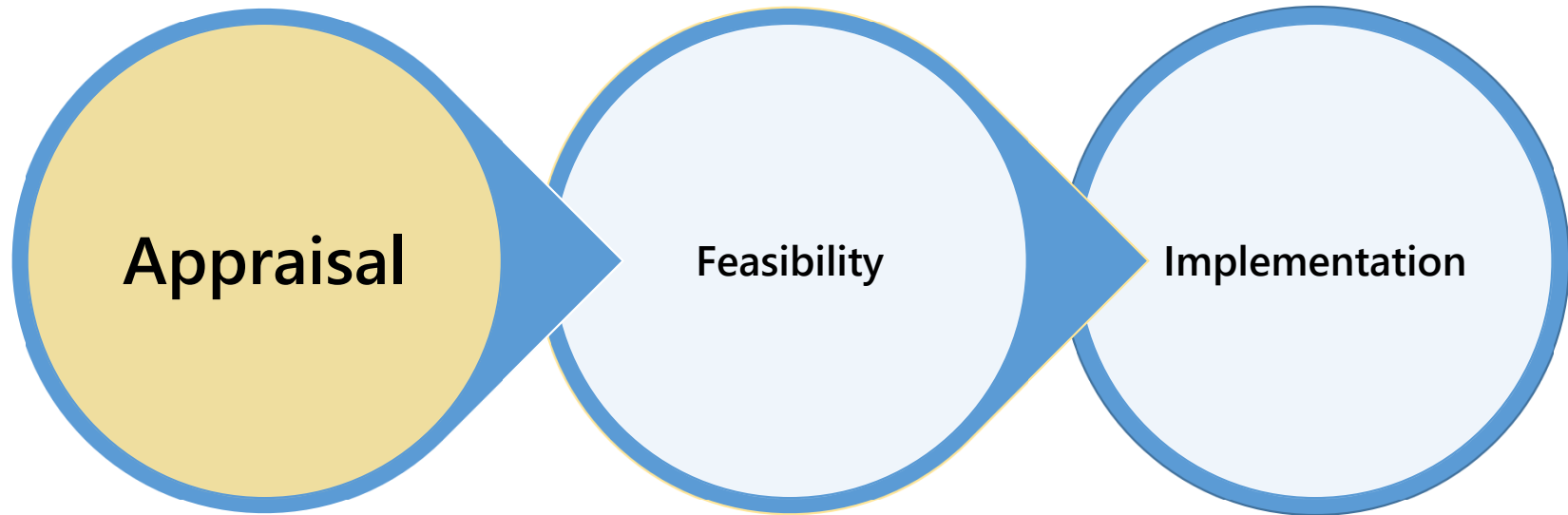


**Legend**

- △ Recharge Facility
- Canal
- River
- Lake
- SRVWUA

Carto: PHX\_WATERSUPPLY\_SERIES.mxd 2/24/2021

# Planning Process



- Identify Problem, Need and Opportunity
- Review of existing data
- Develop alternatives
- Stakeholder engagement



# Appraisal Study Problem

- Because of sedimentation at Horseshoe Dam, Horseshoe Reservoir's capacity has been reduced by approximately 46,000 acre-feet
- The lost capacity reduces available storage capacity for City of Phoenix and SRP's water shareholders.

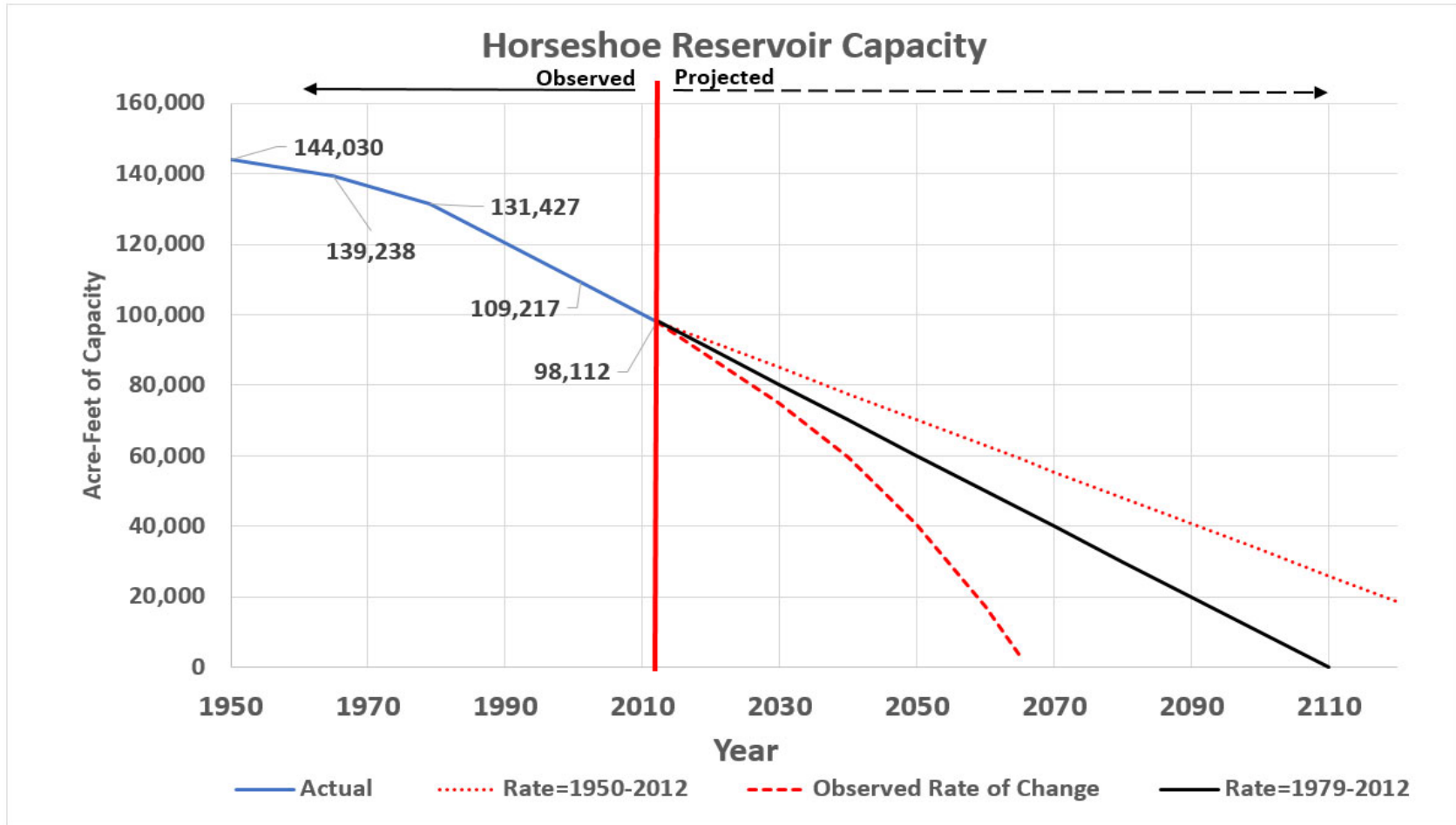
Horseshoe Dam and Reservoir



Horseshoe Reservoir at 0% full



# Horseshoe Sediment





# Appraisal Study Need & Opportunity

## Need:

- Restore lost capacity
- Mitigate future sediment loadings

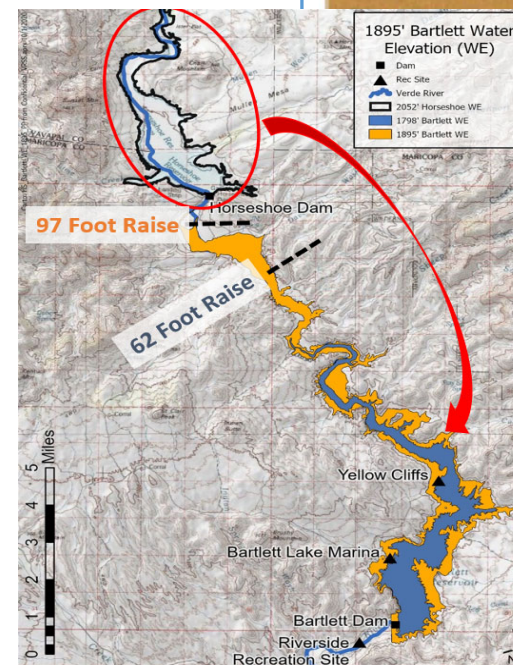
## Opportunity:

- Developing new water sources, managing existing water sources differently, rehabilitation measures, system upgrades, conservation measures, etc.

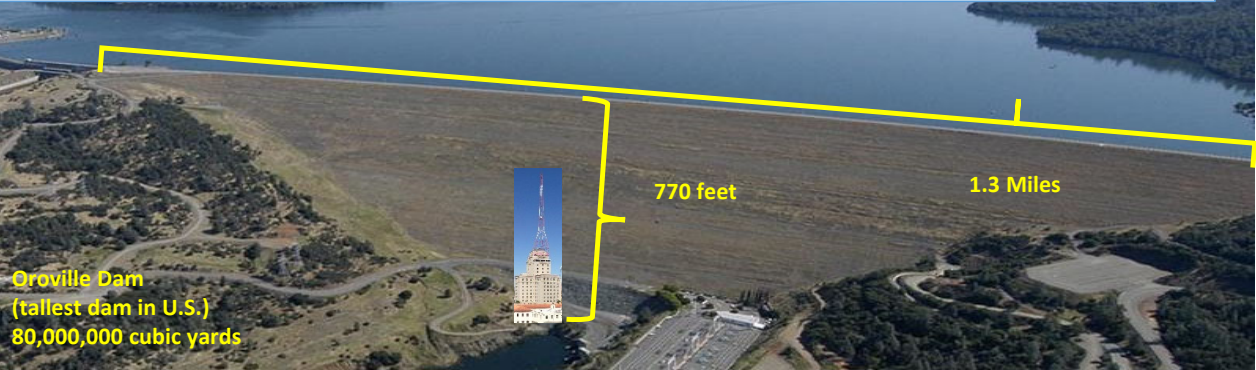
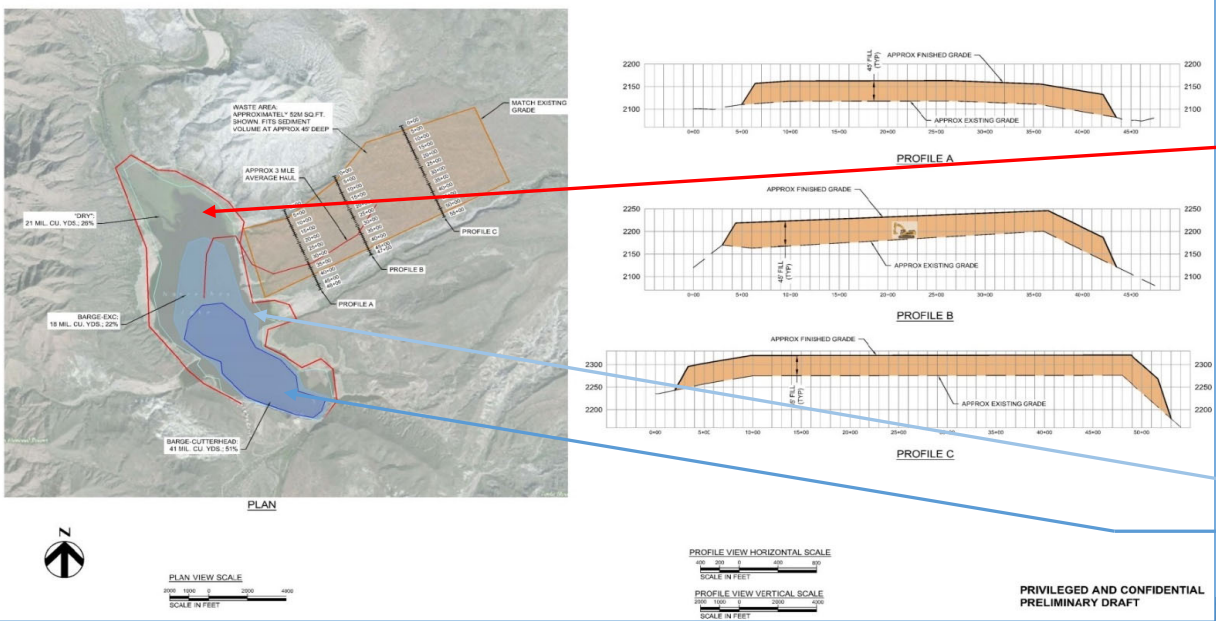


# Appraisal Study Alternatives Analyzed

- Without Action
- Sediment Removal (mechanical removal)
- Bartlett Modification 1 (97' raise)
- Bartlett Modification 2 (62' raise)
- Alternatives considered but not fully evaluated



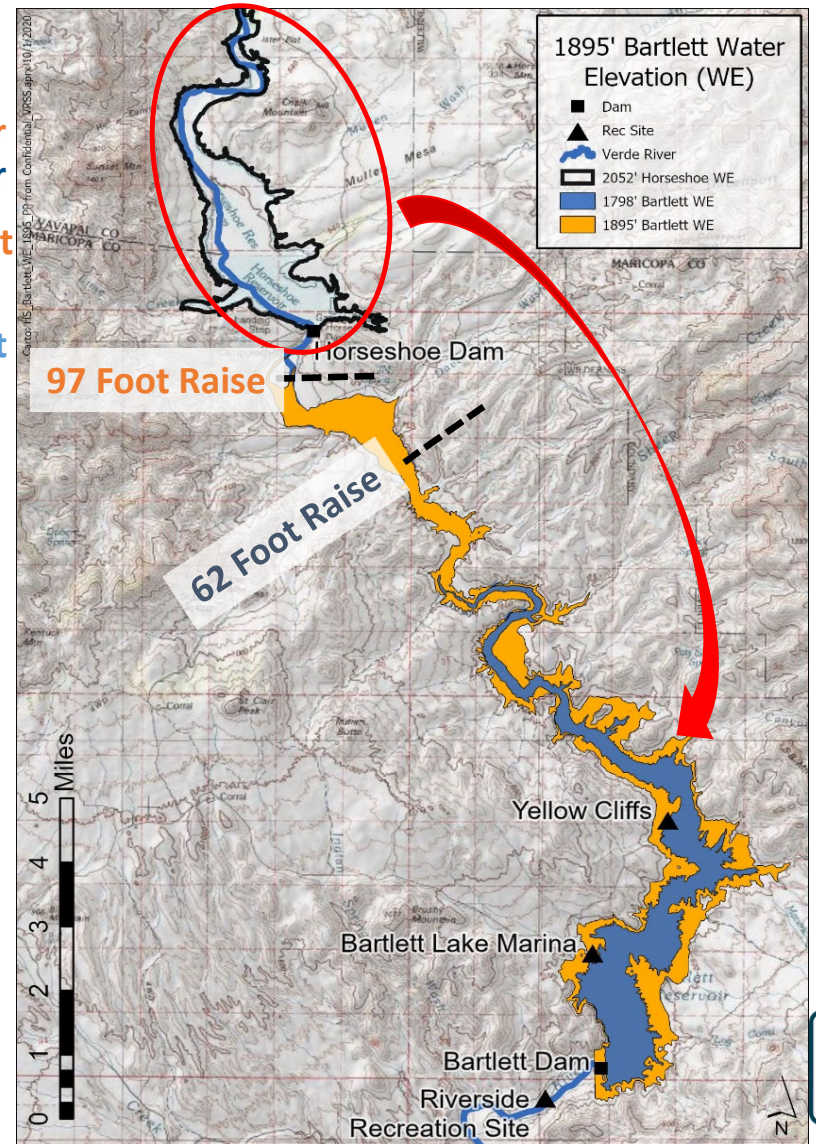
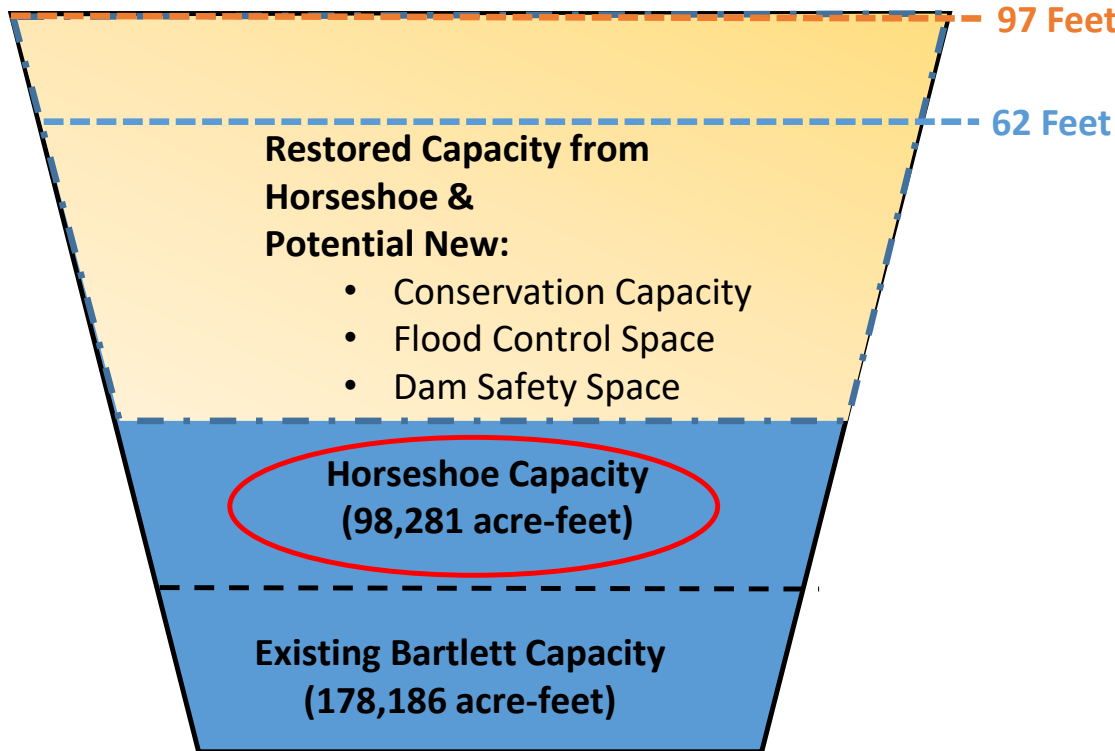
# Sediment Removal



# Bartlett Modification Options

**Option 1: Increase dam height=97 Feet, 628,000 Acre-Foot Reservoir**

**Option 2: Increase dam height=62 Feet, 422,000 Acre-Foot Reservoir**



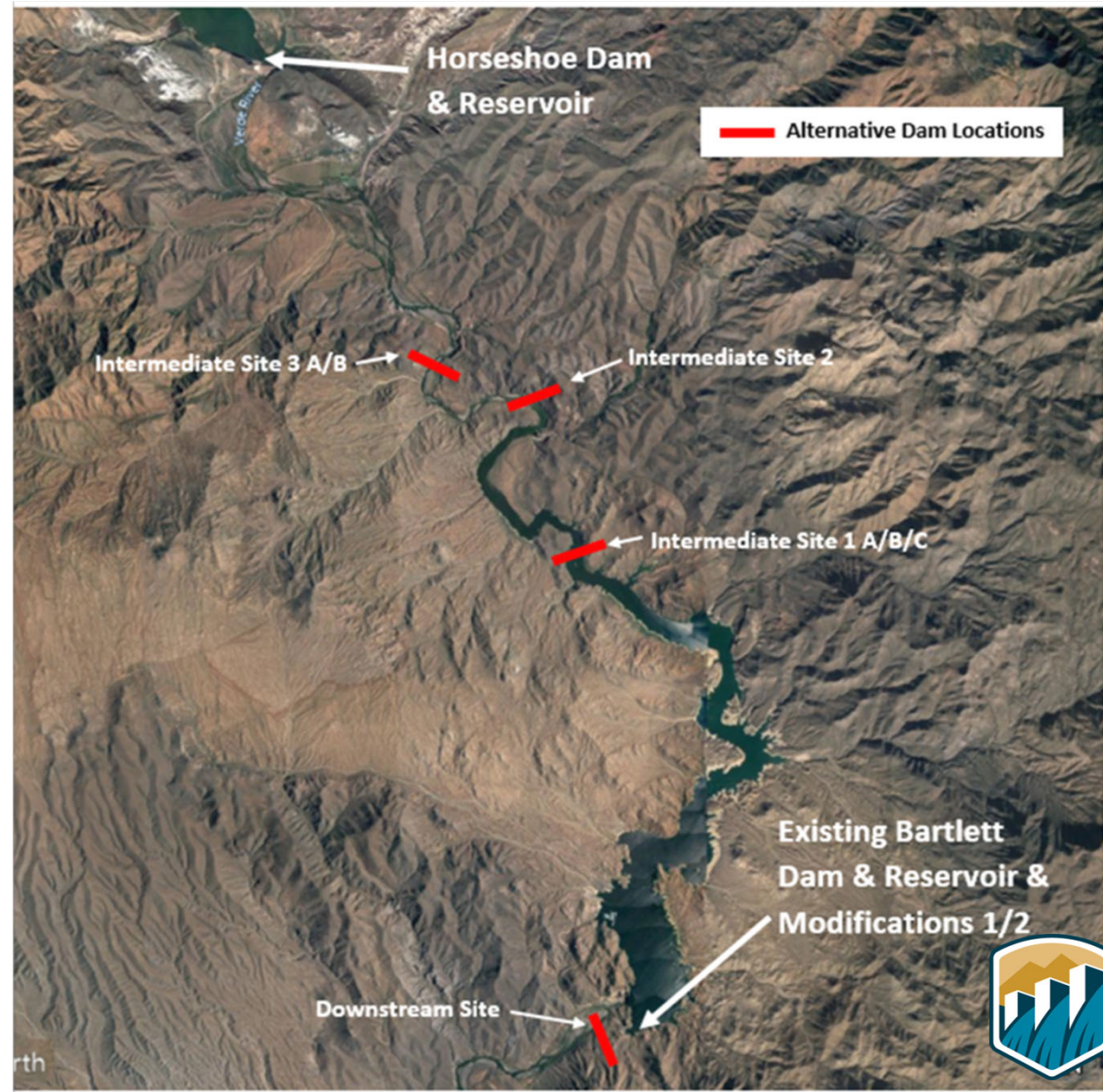
# Alternatives Considered but not Fully Evaluated

- **Reservoir Sluicing and Flushing**
  - Requires low-level outlet works to accommodate high flows
  - Small capacity river outlet works
  - Shallow and wide reservoir
- **Watershed Sediment Management**
  - Forest restoration and fuels reduction
  - Structural erosion and sediment control measures
  - Grazing management
  - Forest road and travel management



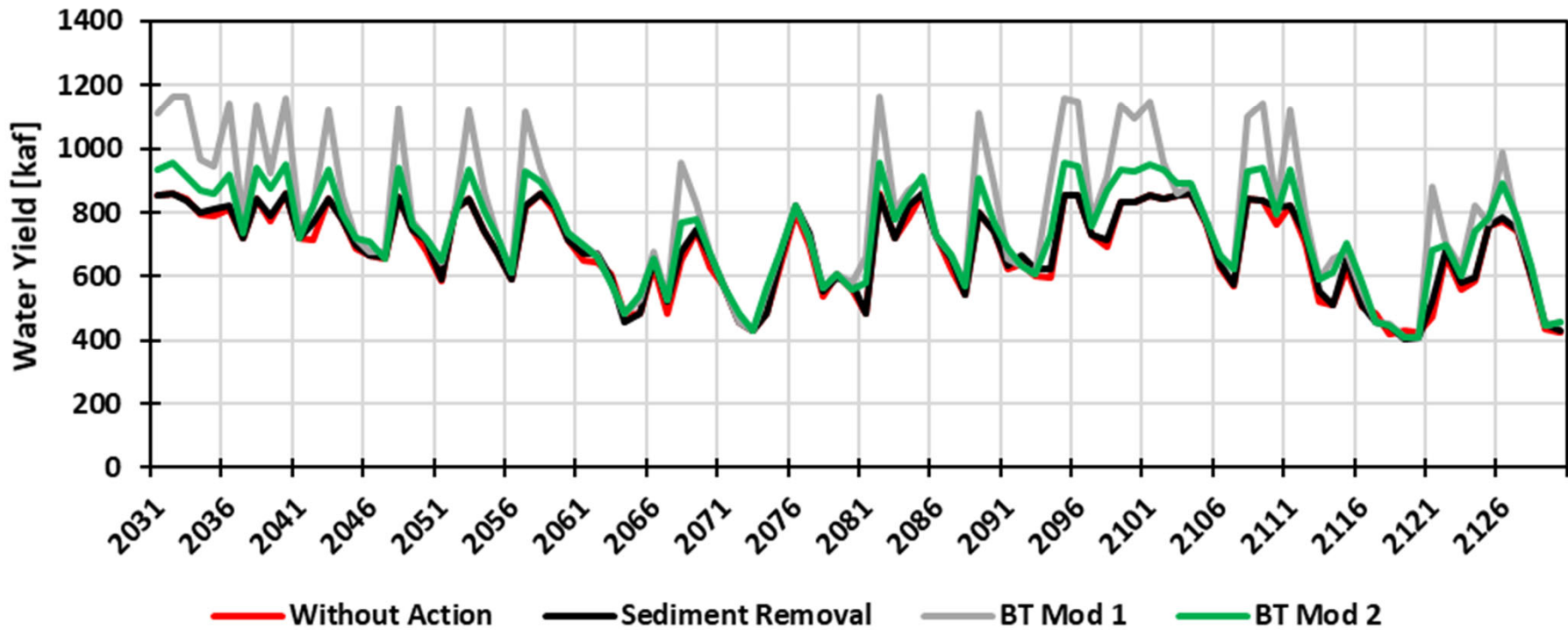
# Other Reservoir Alternatives

- 5 sites between Horseshoe and Bartlett Dams
- 1 site downstream of Bartlett



# Appraisal Study - Surface Water Yield

## Annual Salt and Verde Reservoir Surface Water Yield (excluding spill)



# Appraisal Study - Surface Water Yield

## Summary of Modeled Surface Water Yield

Alternative	Change in Annual Phoenix Gatewaywater Accrual [kaf/yr]	Change in Annual SRP Surface Water Delivery [kaf/yr]	New Verde Space (NVS) Average Annual Yield [kaf/yr]	Annual Average Surface Water Delivery Change from w/o action [kaf/yr]
<b>Without Action</b>	-	-	-	-
<b>Sed Removal</b>	3	7	-	10
<b>BT Mod 1 (97 ft)</b>	8	16	91	115
<b>BT Mod 2 (62 ft)</b>	8	16	36	60





# Appraisal Study Recommendations

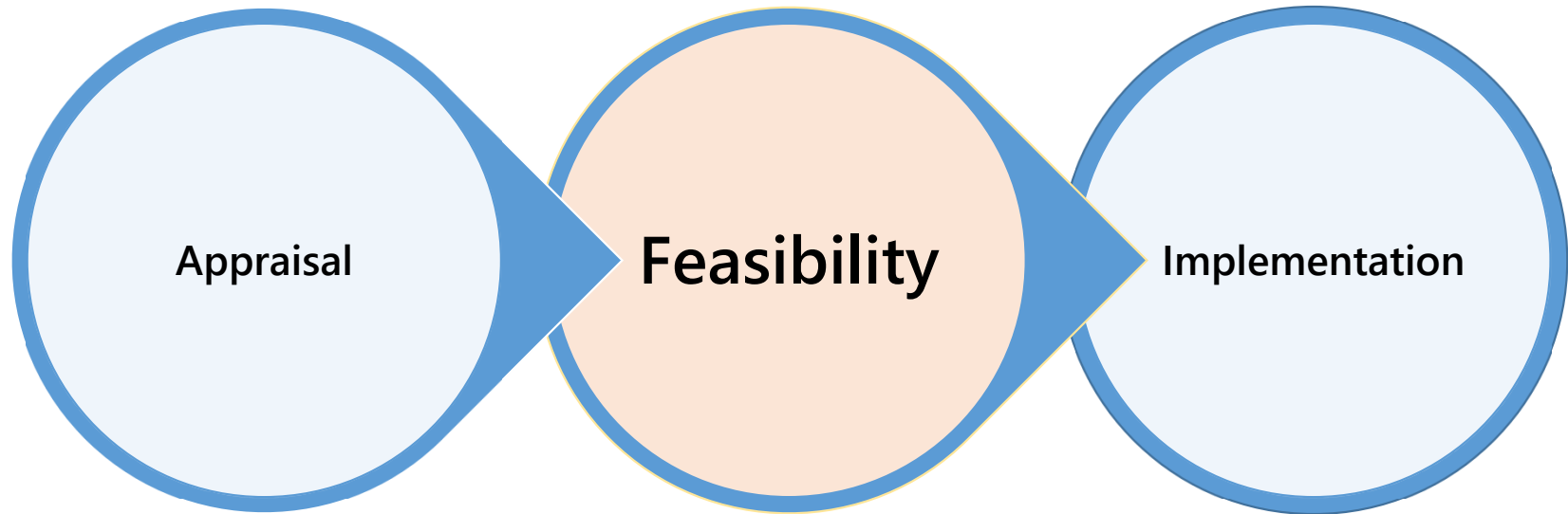
- Seek/confirm authority to conduct a feasibility study
  - No action
  - Bartlett Modification 1
  - Bartlett Modification 2
- Develop cost share agreements to conduct feasibility study
- Clearly define planning objectives
- Address risks and uncertainties during the feasibility study process

Link to full Verde Reservoirs Sediment Mitigation Study (VRSMS) appraisal study report

[https://www.usbr.gov/lc/phoenix/reports/verdeRSMS/VRSMS\\_Appraisal\\_Report.pdf](https://www.usbr.gov/lc/phoenix/reports/verdeRSMS/VRSMS_Appraisal_Report.pdf)



# Planning Process



- Authority
- Refine Problem, Need and Opportunity
- Further development of alternatives



# Feasibility Process

- Feasibility Scoping
- Conduct planning activities
- Inventory existing resources and forecast future conditions
- Formulate, evaluate and compare alternative plans
- Select recommended plan
- Prepare final report

For more details on the feasibility process visit <https://www.usbr.gov/recman/cmp/cmp09-02.pdf>



# VRSMP Feasibility Study

- Authorized by Title IX of the Bipartisan Infrastructure Law, P.L. 117-58
- Cost Share Requirement
- Elaborates on the analysis in the VRSMS Appraisal Report for restoring lost capacity and increasing benefits created by the Verde River reservoir system for the purposes of water supply, hydropower, dam safety, flood control, environmental and recreation.

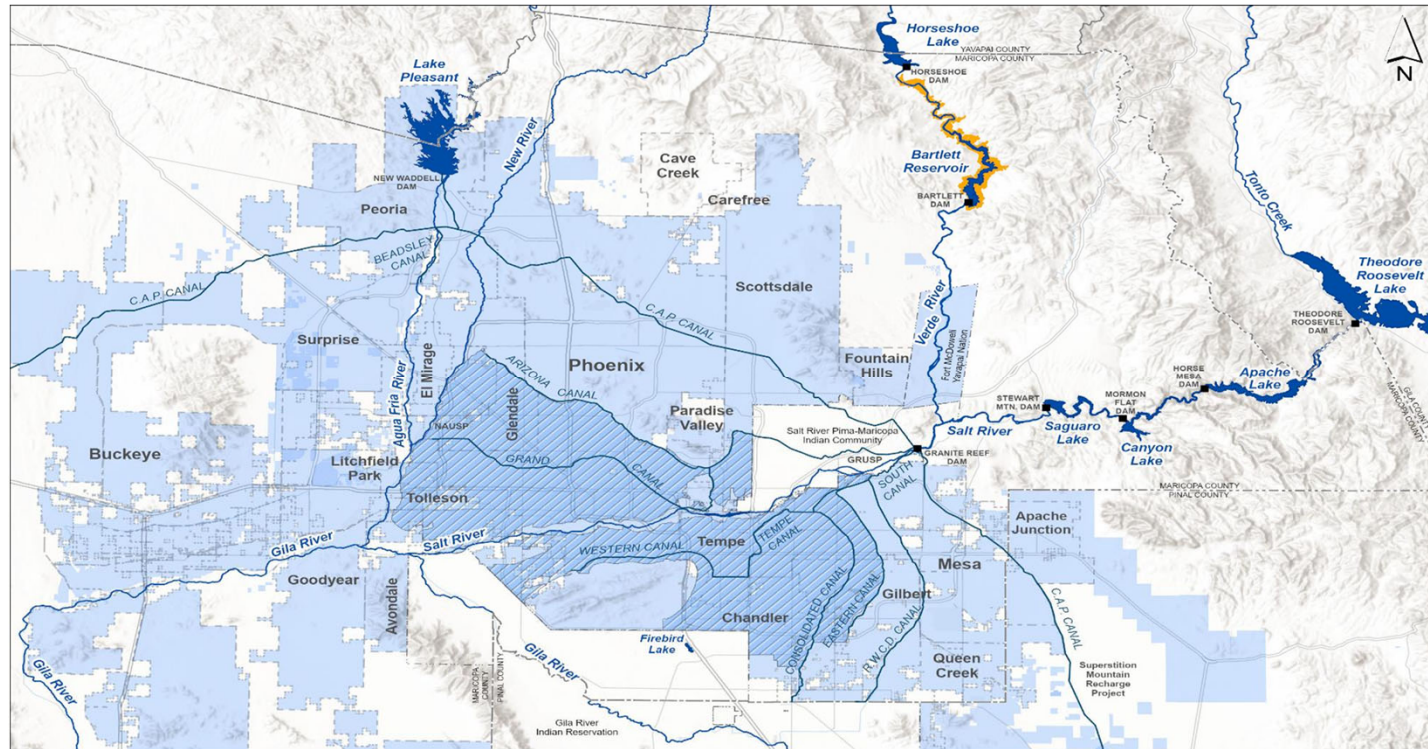


Bartlett Dam



# VRSMP Cost Share

- Requires minimum 50% non-federal cost share
- Cost share agreement among 23 non-federal partners
- Cost share agreement between Reclamation and SRP
  - Support non-federal funding requirements
  - Support study with technical information



# VRSMP Feasibility Objectives

- Restore water storage capacity on the Verde Reservoir system that has been lost from sedimentation at Horseshoe Reservoir and mitigate future sediment accumulation impacts
- Evaluate additional water storage capacity and associated water supplies on the Verde Reservoir system including opportunities for use to facilitate negotiations and implementation of Indian Water Rights Settlements and other federal uses.
- Consider opportunities for increasing benefits created by the Verde River reservoir system for the purposes of hydropower, dam safety, flood control, fish and wildlife and recreation
- To the extent practicable, avoid and minimize adverse impacts on physical, biological, socioeconomic, cultural, and tribal resources



# Feasibility Initial Alternatives

## Basis for Initial Alternatives

- Verde Reservoirs Sediment Mitigation Study (VRSMS) Appraisal Results
- Feasibility Plan of Study
- Value Planning Study
- Public scoping



# Feasibility Planning

## Problems:

- Lost capacity due to sedimentation
- Future sediment accumulations
- Decreased water supply resiliency

## Needs:

- Restore lost capacity
- Manage future sediment loadings
- Increase renewable supplies



Horseshoe Dam Reservoir and Spillway





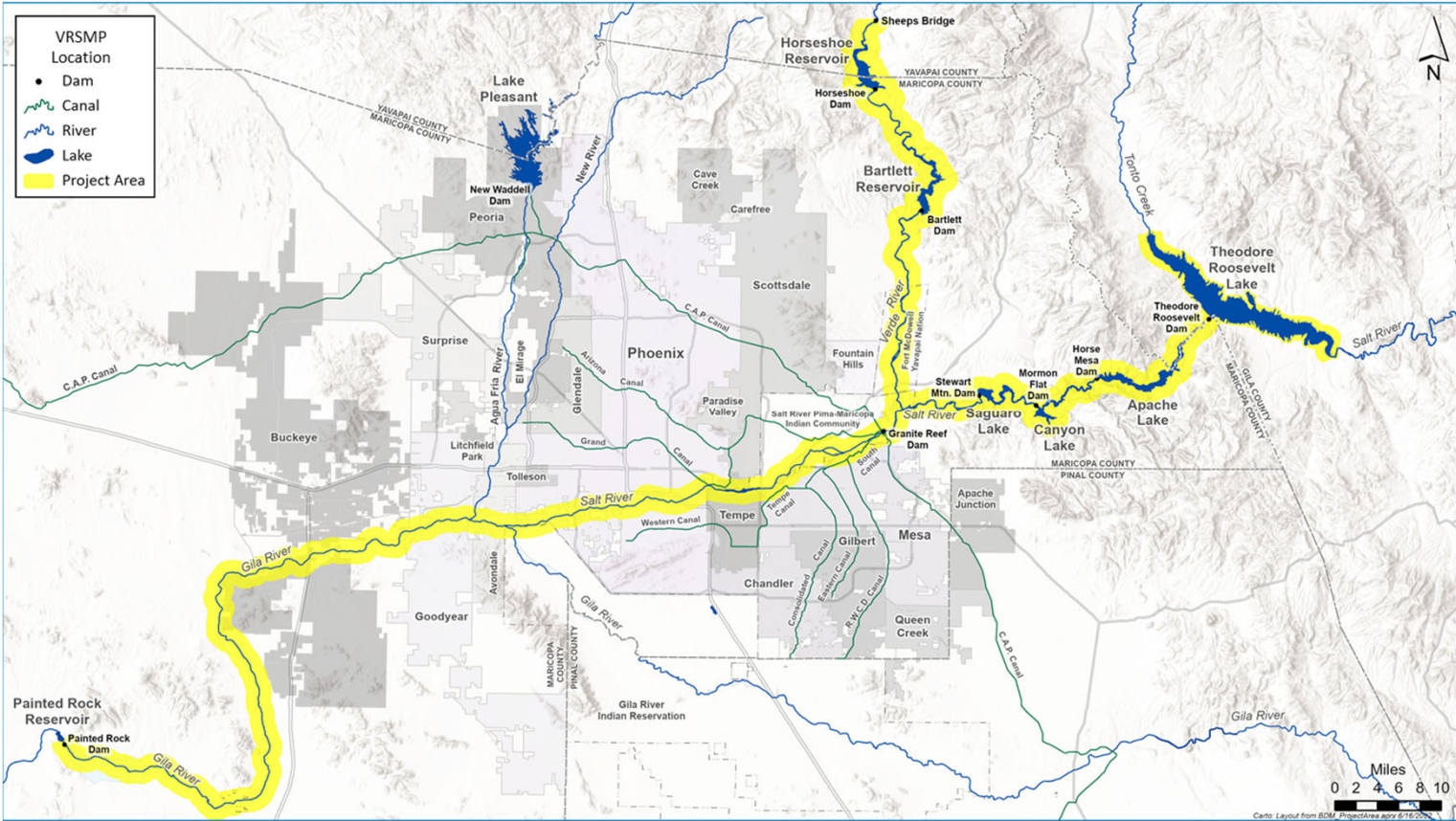
# Feasibility Planning

## Opportunities:

- Potential to create additional benefits through:
  - Additional water supply
  - Flood control
  - Dam safety
  - Recreation
  - Hydropower
  - Environmental benefits



# VRSMP Tentative Study Area



# VRSMP Feasibility Study Timeline

- November 2021 – Feasibility Study authorized by Title IX of the Bipartisan Infrastructure Law, P.L. 117-58
- SRP non-federal entity MOU and Cost Share Agreement
- May 2022, Cost Share Agreement between Reclamation and SRP
- Fall 2022 – Value Planning
- Winter 2023 – Complete 30% design
- Stakeholder meeting late winter or early spring 2024
- Spring 2024 – Initiate NEPA process
- Fall 2026 – Complete Final EIS and Feasibility Report



Horseshoe Dam Reservoir and Spillway



# Opportunities for Engagement

- Government-to-Government consultations with tribes
- Stakeholder meetings
  - November 16, 2023
  - Spring 2024
- National Environmental Policy Act (NEPA)
  - Notice of Intent (NOI)
  - Draft Environmental Impact Statement (EIS)
  - Final EIS



# Project Websites

- Reclamation: <https://www.usbr.gov/lc/phoenix/programs/VRSMP.html>
- SRP: <https://www.srpnet.com/grid-water-management/water-management/lakes/bartlett-dam-project>



Email questions to:  
[VRSMP@usbr.gov](mailto:VRSMP@usbr.gov)



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