BUREAU OF RECLAMATION

Paradox Valley Unit of the Colorado River Basin Salinity Control Program

DRAFT Environmental Impact Statement

Public Meetings

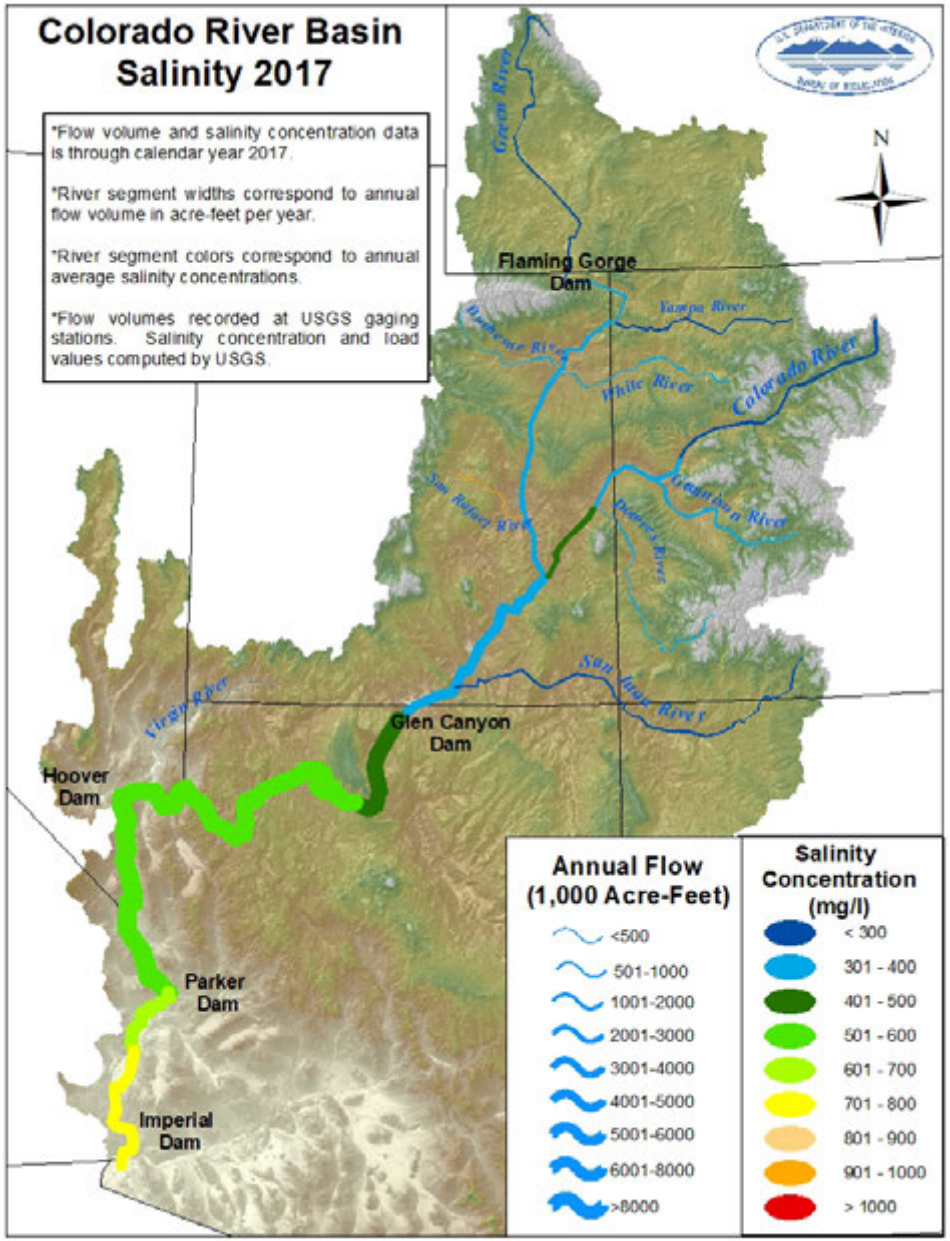
January 14 and 15, 2020

BUREAU OF RECLAMATION

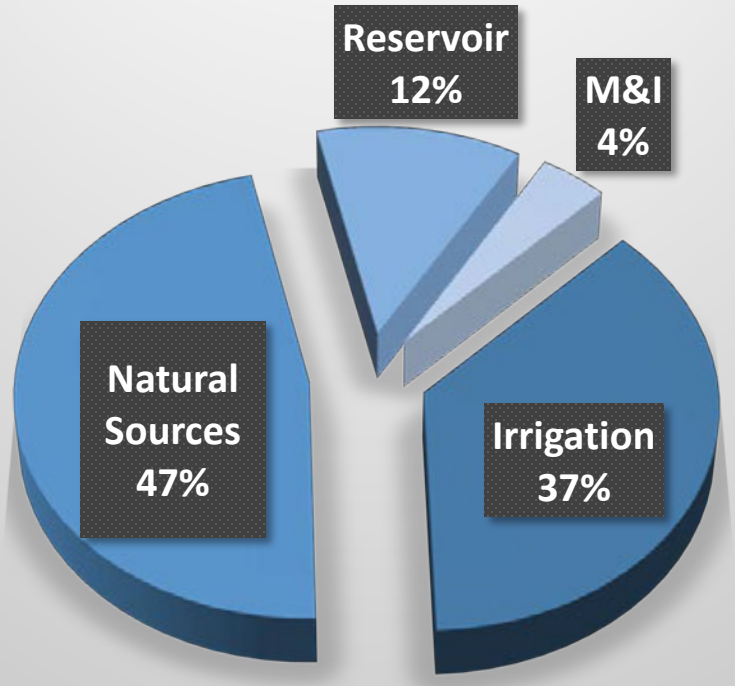
Topics

- Colorado River Salinity Problem
- Overview of Paradox Valley Unit
- PVU Alternatives Analysis / EIS
- NEPA Process

Colorado River Salinity

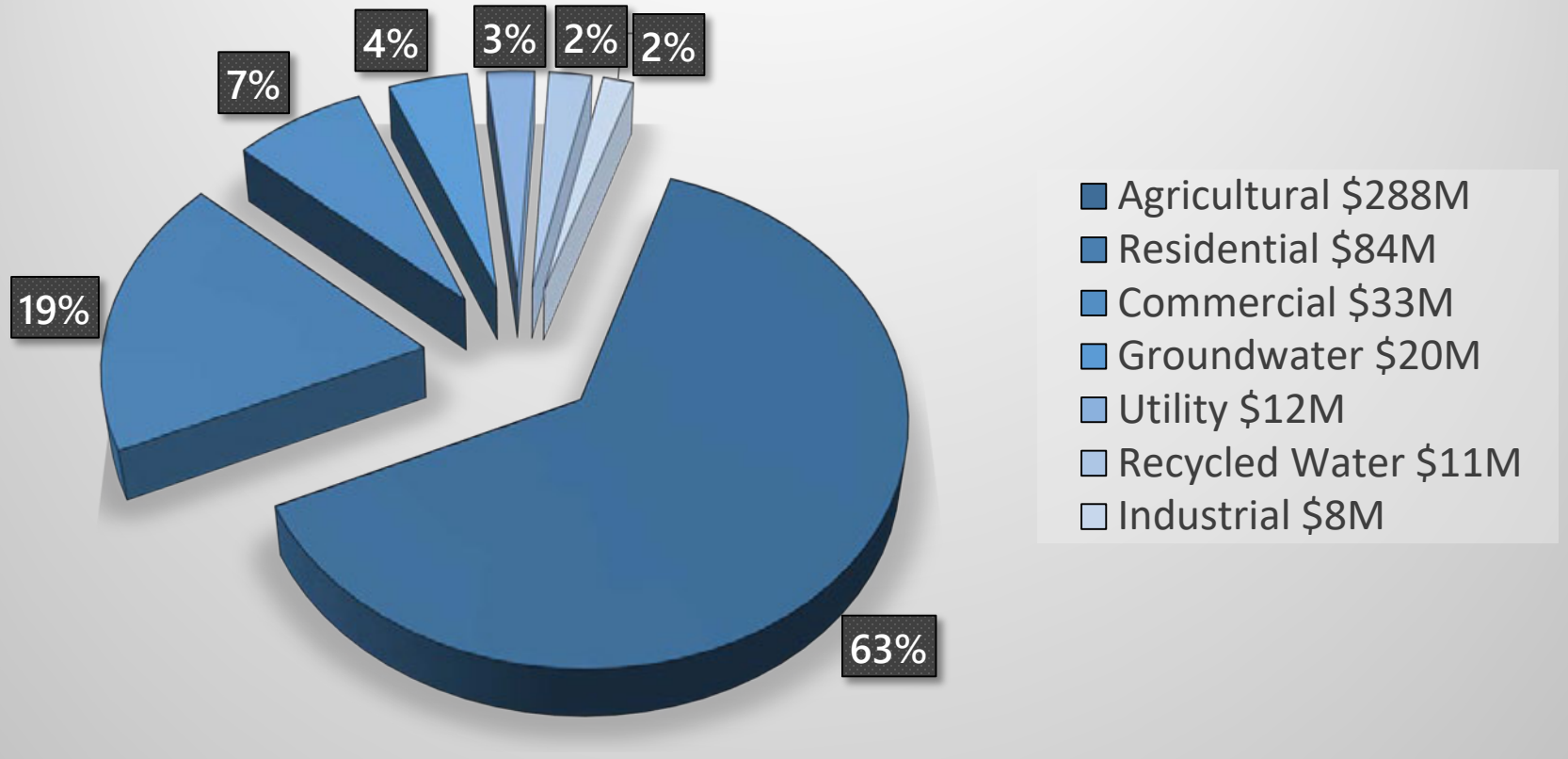


Sources of Salinity



Impacts of Increased Salinity

2017 Quantified Economic Damages
$456 Million / Year



Colorado River Basin Salinity Control Act

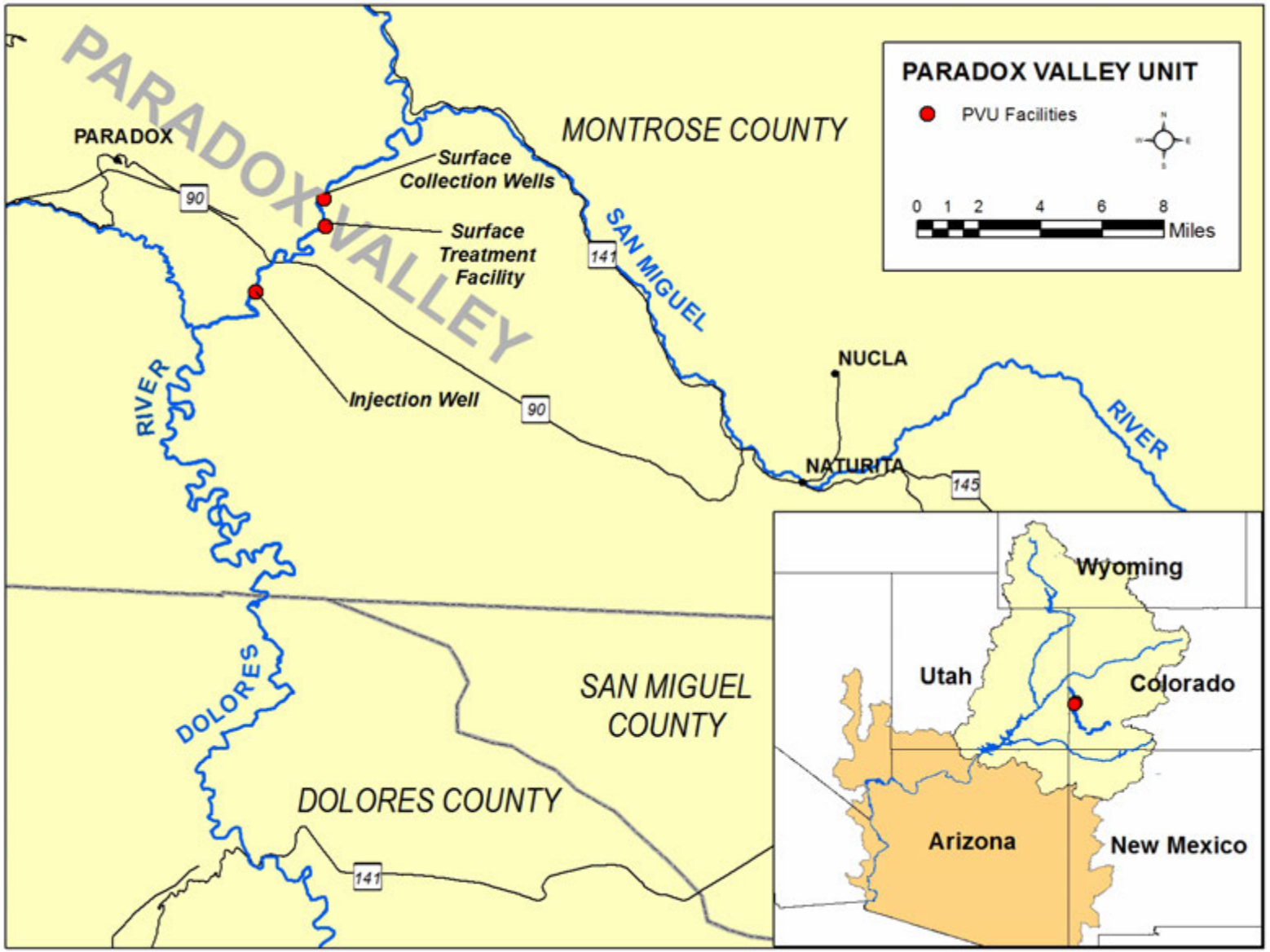
Requires implementation of salinity control programs to reduce salinity of the Colorado River

COLORADO RIVER BASIN SALINITY CONTROL FORUM

Composed of the seven Basin States:

Arizona
California
Colorado
Nevada
New Mexico
Utah
Wyoming

Paradox Valley Unit



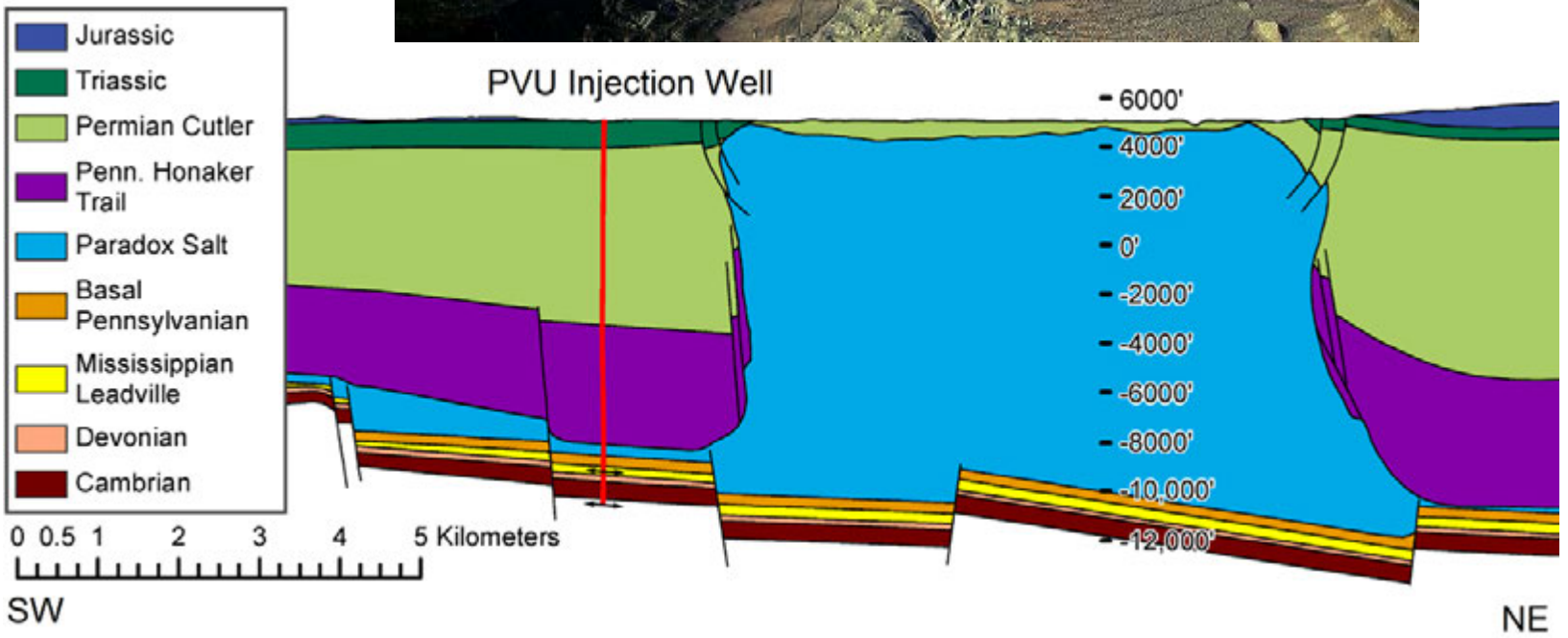
Existing PVU

- Collects naturally occurring brine groundwater and injects it via a deep injection well into the Leadville Formation, preventing the brine from entering the Colorado River system. This represents about 7% of the total salinity control in the Colorado River basin.
- Prevents 95,000 tons of salt/year from entering the Dolores River, which flows into the Colorado River.
- Provides $23 million in annual economic benefits in the Lower Colorado River Basin.

PVU Brine Injection Facility

- Operational since 1996, the PVU is nearing the end of its projected life.

Cross Section of Existing Injection Well



Why is the PVU nearing the end of its life?

- Compliance with the EPA Underground Injection Control (UIC) Permit
  - Limits the Maximum Allowable Surface Injection Pressure to protect underground sources of drinking water
  - The surface injection pressure continues to increase due to increasing pore pressures in the injection formation, even with decreasing brine injection rates
- Seismicity
  - Increasing pore pressures and the confined nature of the injection fault block contributes to increasing frequency and magnitude of seismicity

PVU Alternatives Study and Environmental Impact Statement (EIS)

- The National Environmental Policy Act (NEPA) requires federal agencies to evaluate and disclose the impacts of their proposed actions.
- Potential alternatives for controlling salinity in the Paradox Valley were developed through public and agency scoping and coordination.
- Numerous technical, engineering and environmental studies have been completed to assess the feasibility and to evaluate the impacts of potentially viable alternatives for continued salinity control in the Paradox Valley.

PVU Draft EIS

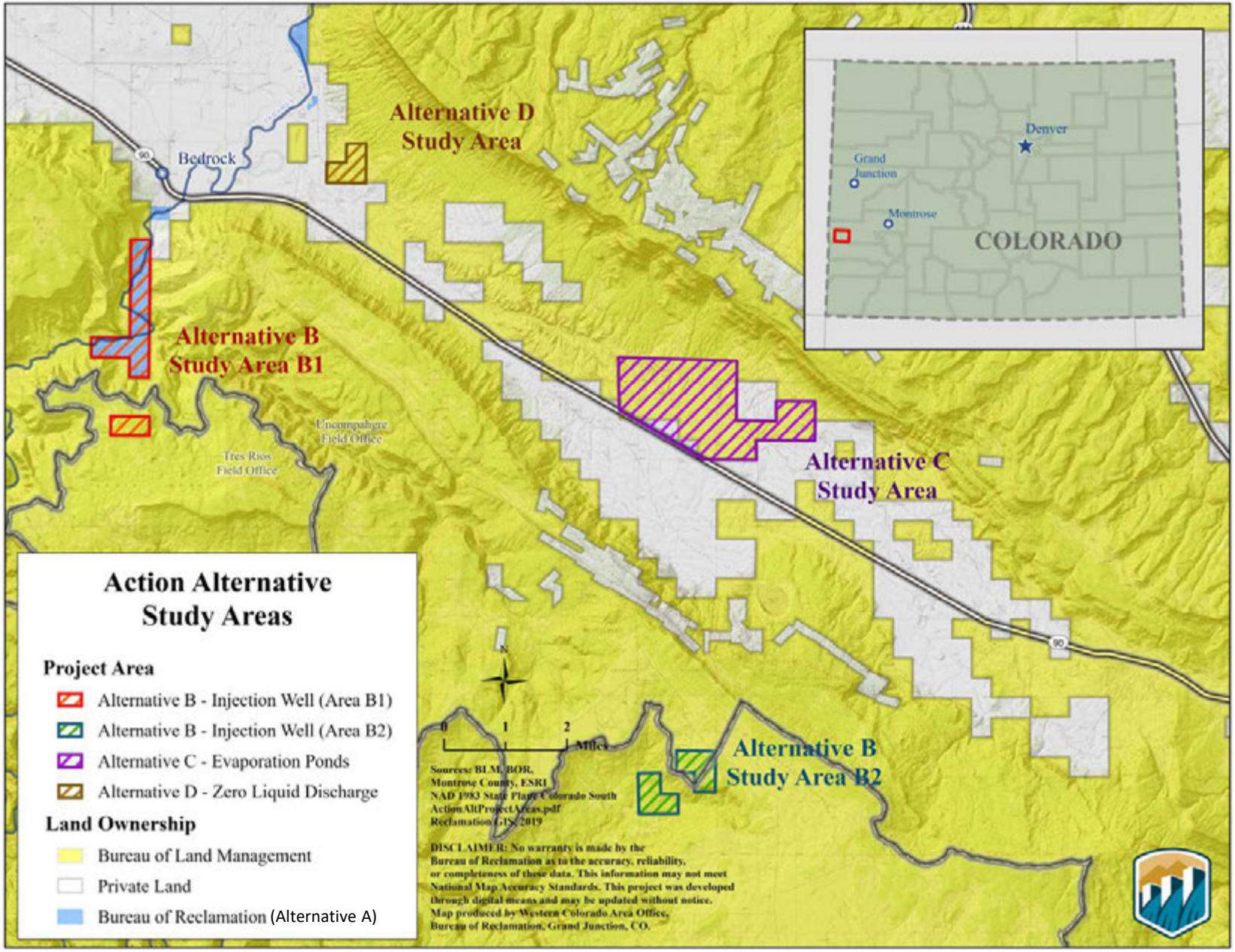
- Reclamation is the lead federal agency, and there are 18 cooperating agencies.
- BLM is a cooperating agency with a connected action to process Reclamation's land use authorization on public lands for collection and disposal of saline groundwater of Paradox Valley.
- Both Reclamation and BLM will make recommendations to the authorized official, who will make a decision based on the analysis in the EIS.

Overview of Alternatives*

- Alternative A - No Action: Closure of the PVU and no salinity control in the Paradox Valley.
- Alternative B – New Deep Injection Well: Two areas, Area B1 and Area B2, are analyzed as potential locations for a new deep injection well.
- Alternative C – Evaporation Ponds: Evaporation pond complex and permanent salt disposal landfill.
- Alternative D – Zero Liquid Discharge Technology: Thermally driven crystallizers that result in a solid salt and produced freshwater stream; permanent salt disposal landfill.

*All Alternatives involve BLM-administered land; therefore, BLM will also make a decision regarding land use authorization.

Action Alternatives



Cost Summary

	Salt removed per year (tons)	Construction Cost ($ million)	Annual Operation, Maintenance & Replacement ($ million)	Cost Effectiveness ($/ton of salt removed)	Annual Economic Benefit ($ million)
Alternative A – No Action	0	$3.7 (Decommissioning)	$0	N/A	$0
Alternative B – Area B1 Injection Well	114,000	$99 - $106	$2.7	$57 - $59	$28
Alternative B – Area B2 Injection Well	114,000	$116	$3.2	$67	$28
Alternative C Evaporation Ponds	171,000	$132	$5.7	$63	$42
Alternative D Zero Liquid Discharge	171,000	$112	$11.8	$94	$42

Note: Each action alternative has risks which could significantly affect costs

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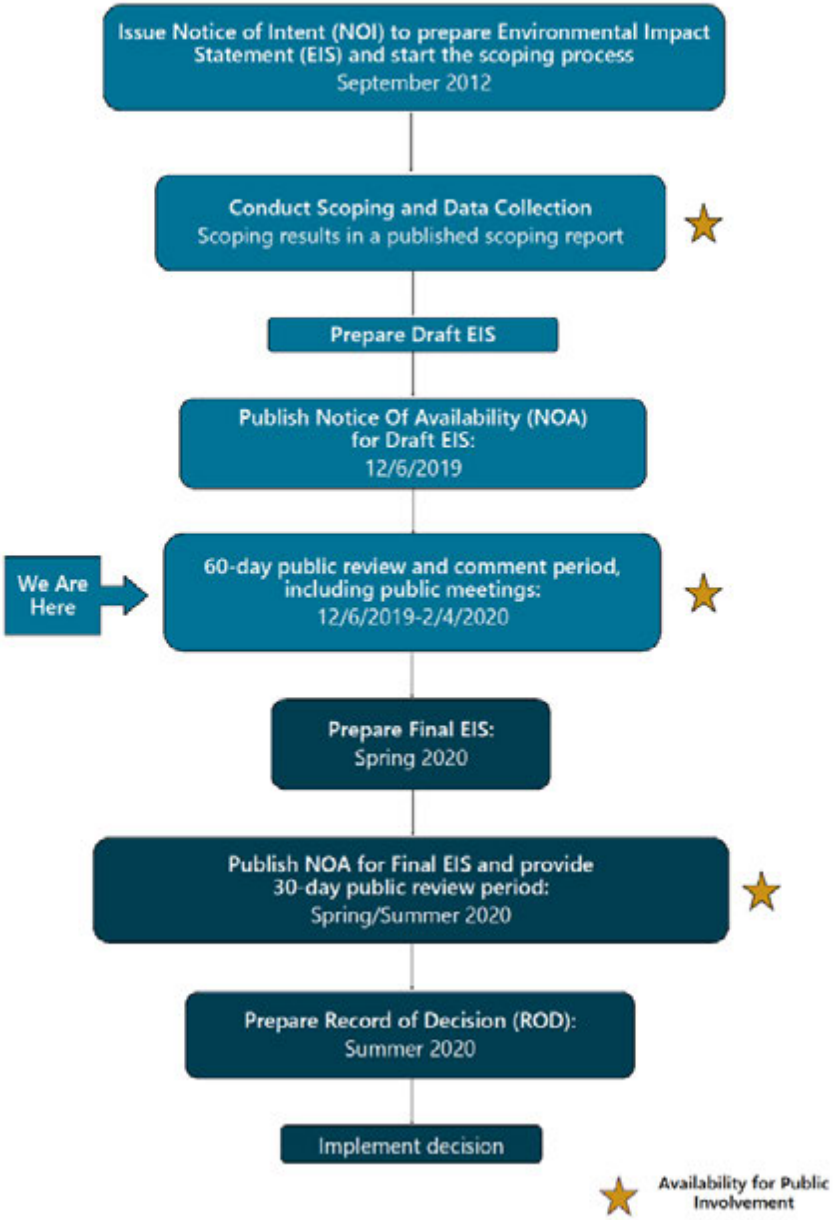
NEPA Planning Process



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How to Get Involved:

Get on the mailing list by sending a request to paradoxeis@usbr.gov

Visit the Project Web site at: www.usbr.gov/uc/progact/paradox/index.html

How to Submit Comments:

Submit comments via one of the methods listed below.

Form: Submit a completed comment form at the public meeting

E-mail: paradoxeis@usbr.gov

Mail: Ed Warner, Area Manager, Bureau of Reclamation, 445 West Gunnison Ave, Suite 221, Grand Junction, CO 81501

Comments must be received by February 4, 2020, to be considered.

Questions?

Paradox Valley, Montrose County, CO