



*Developing and implementing beneficial and affordable preventive and corrective actions to address the adverse effects of subsidence on the California Aqueduct.*



# California Aqueduct Subsidence Program

CASP MWD Imported Water Committee  
May 26, 2026



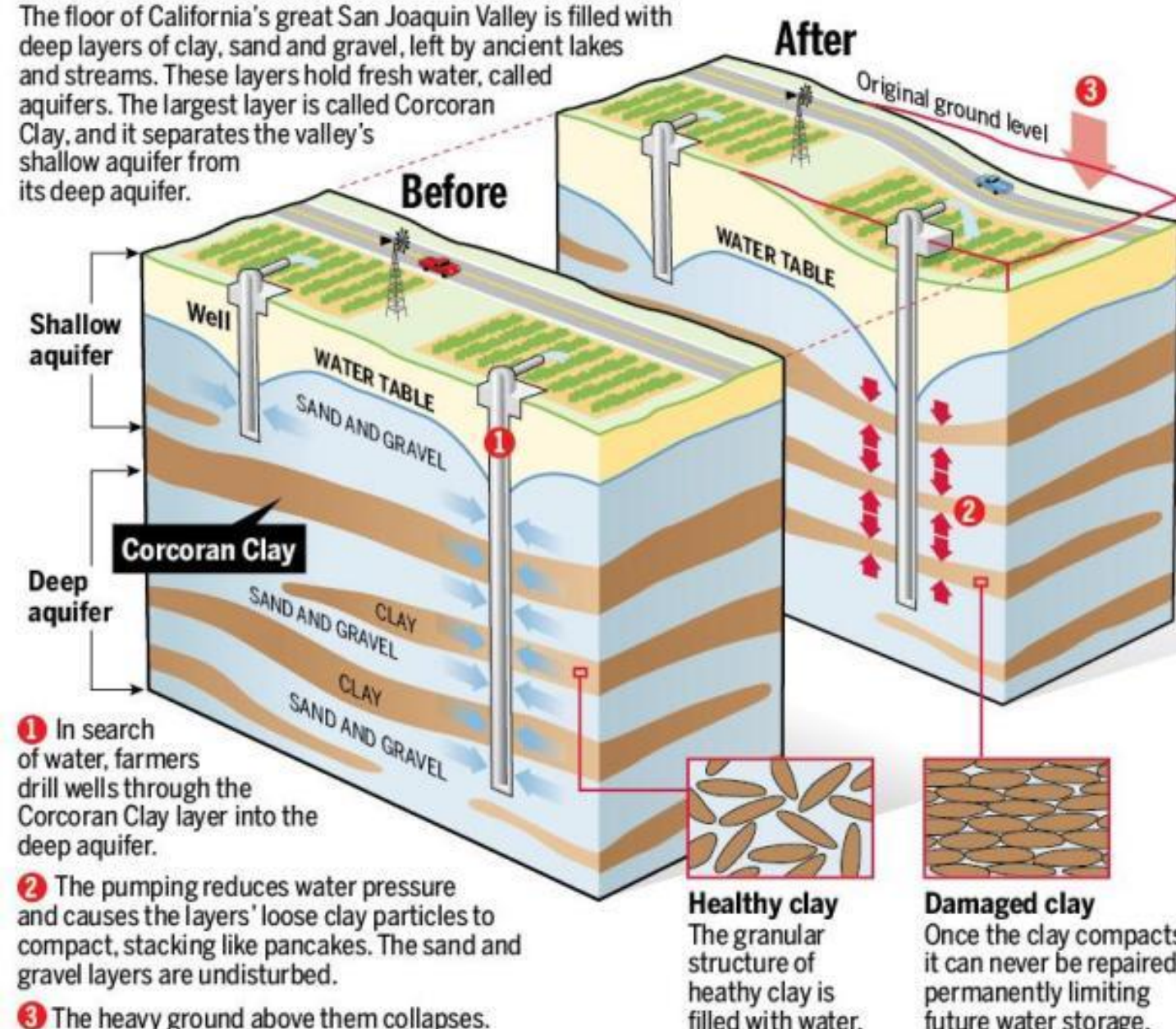
# Agenda

- Subsidence Mechanism + Status
- DWR Strategy
- Corrective Actions
- Funding



# Sinking ground

The floor of California's great San Joaquin Valley is filled with deep layers of clay, sand and gravel, left by ancient lakes and streams. These layers hold fresh water, called aquifers. The largest layer is called Corcoran Clay, and it separates the valley's shallow aquifer from its deep aquifer.



- 1 In search of water, farmers drill wells through the Corcoran Clay layer into the deep aquifer.
- 2 The pumping reduces water pressure and causes the layers' loose clay particles to compact, stacking like pancakes. The sand and gravel layers are undisturbed.
- 3 The heavy ground above them collapses.

**Healthy clay**  
The granular structure of healthy clay is filled with water.

**Damaged clay**  
Once the clay compacts, it can never be repaired, permanently limiting future water storage.

## Subsidence is...

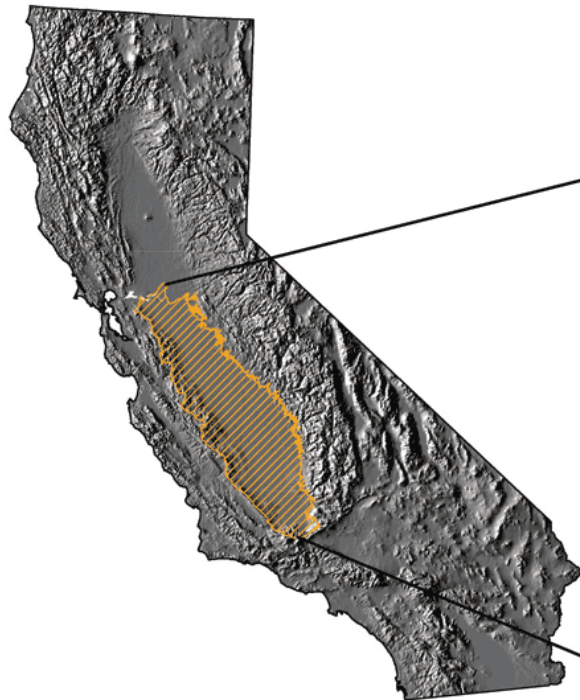
Subsidence refers to the permanent sinking of land surface.

Subsidence is a physical compression that occurs within certain types of soils depending on changing physical conditions.

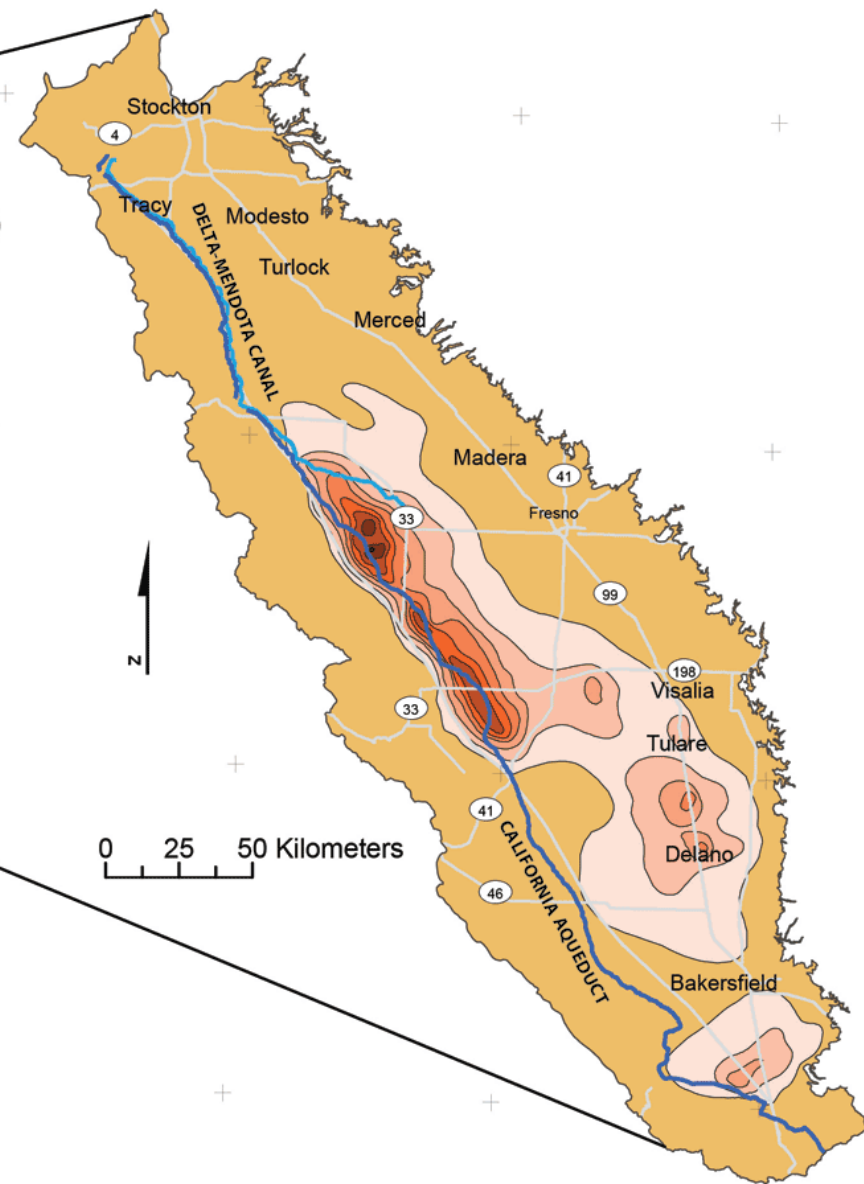
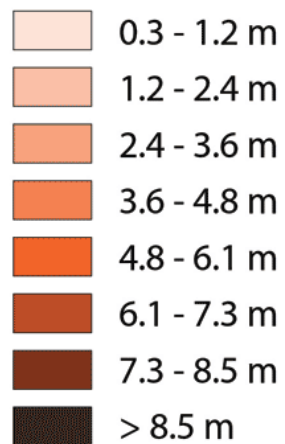
Since the mid-1920s, groundwater pumping in the San Joaquin Valley has caused significant subsidence.



# The Job Site



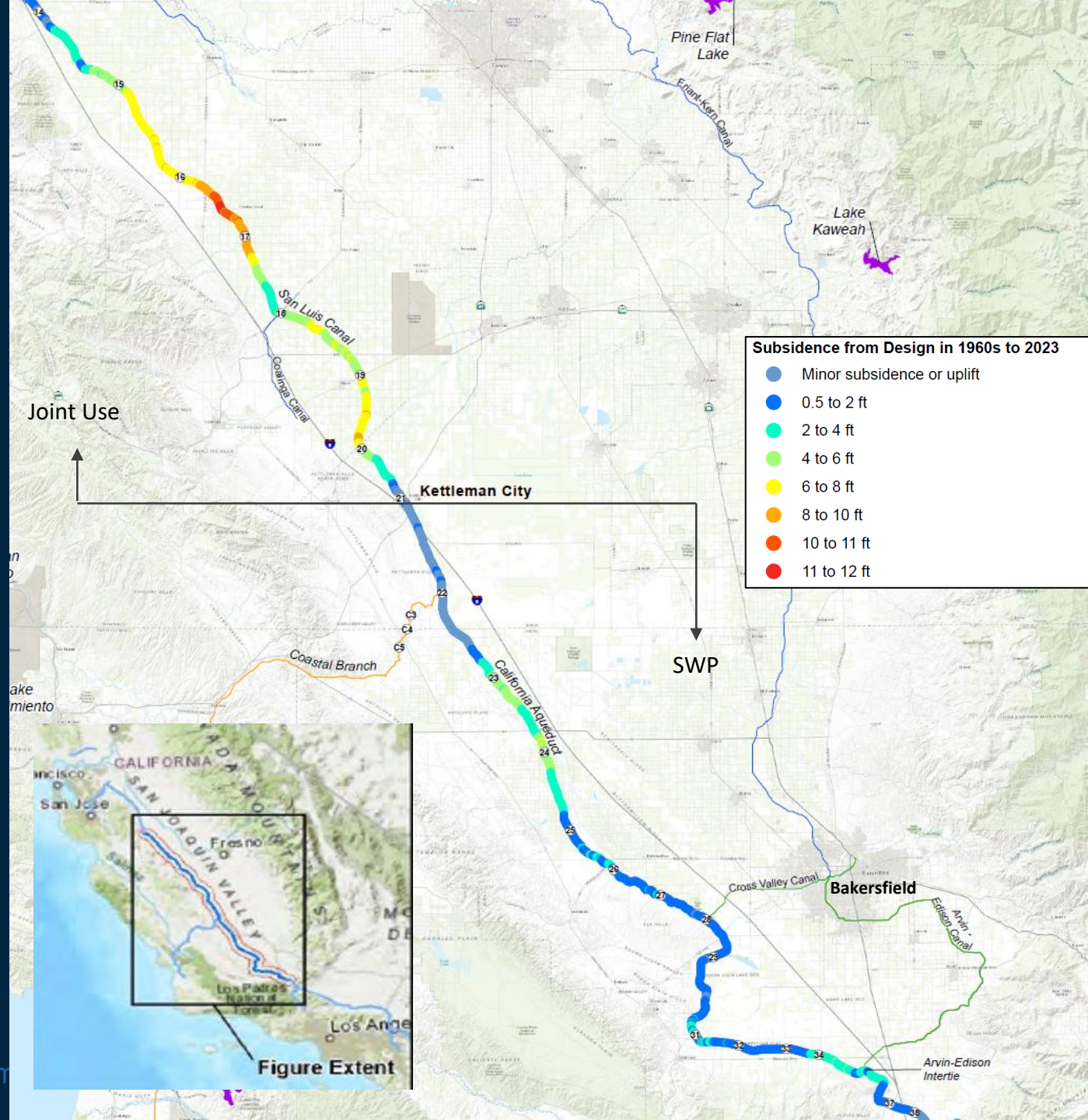
Land Subsidence (1926-70)



 **USGS**  
science for a changing world

# Since Construction Began

- North of Check 21 (Kettleman City) is federally owned, DWR maintained, used by CVP and SWP.
- South of Check 21 is owned, operated and maintained by DWR for the SWP.



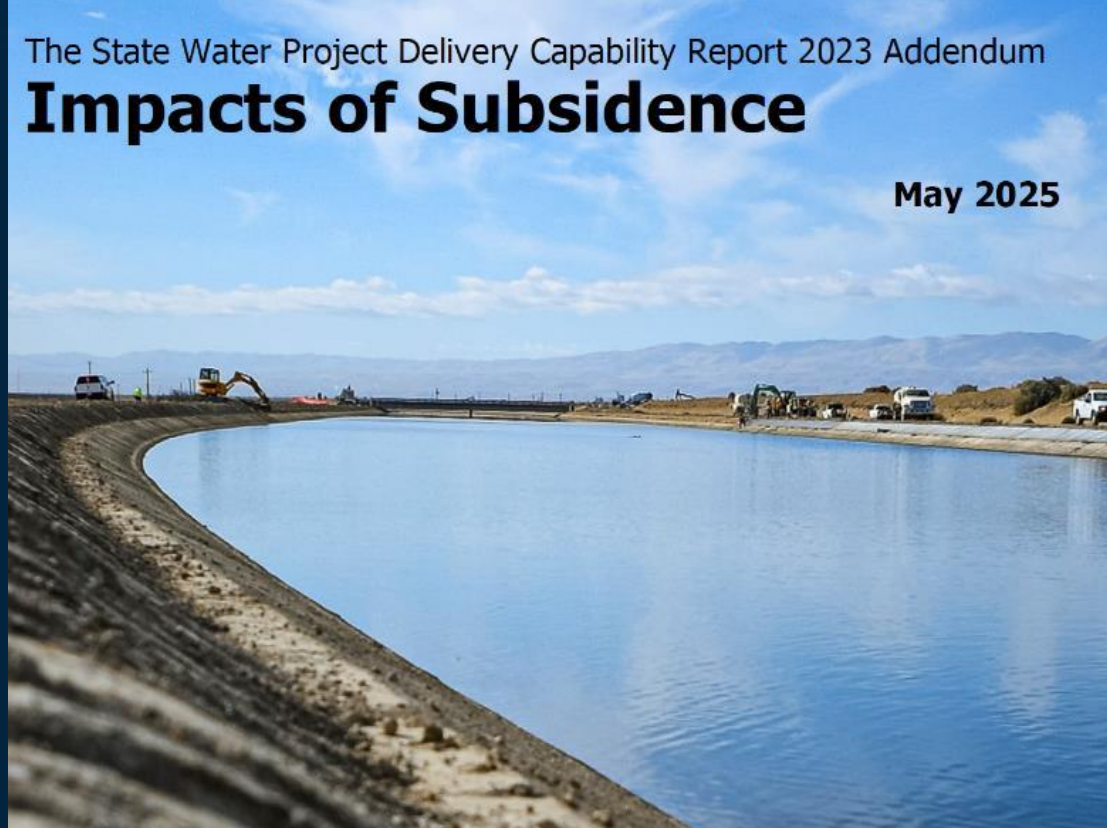


# Strategy

- **Characterize the problem**
- Modify operations
- **Implement corrective actions**
  - Cost effective interim actions to reduce impact of past subsidence on water deliveries and increase flexibility prior to implementation of long-term solutions, and
  - Long-term actions to address past and forecast future subsidence, restore flexibility
- Pursue public investment
- Advocate for preventative actions through interaction with groundwater sustainability agencies and review and comment on their groundwater sustainability plans

# 2023 Delivery Capability Report (DCR) Addendum

- A call to action
- Ongoing subsidence may further reduce aqueduct capacity and affect SWP deliveries over the next 20 years if unaddressed.
- Long-term water supply planning should continue to use the 2023 Delivery Capability Report.





# Corrective Measures

The corrective measures are divided into two categories or phases:

1. Interim Actions – implementation begins later this year
2. Long-term Actions – currently under development

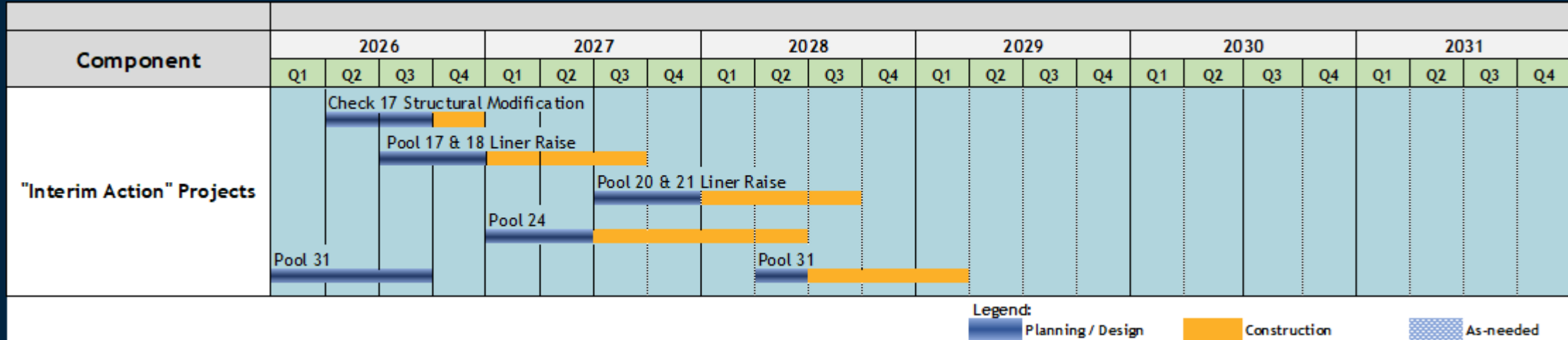


# Interim Actions – Goals

- The objective of “Interim Actions” is to reduce impact of past subsidence on water deliveries and increase flexibility prior to implementation of long-term solutions.
- Focused on cost effective structural actions that can be implemented quickly without regrettable effects on the long-term solutions.
- Minimize water delivery impacts while continuing to operate under current guidelines until long-term solution can be implemented.

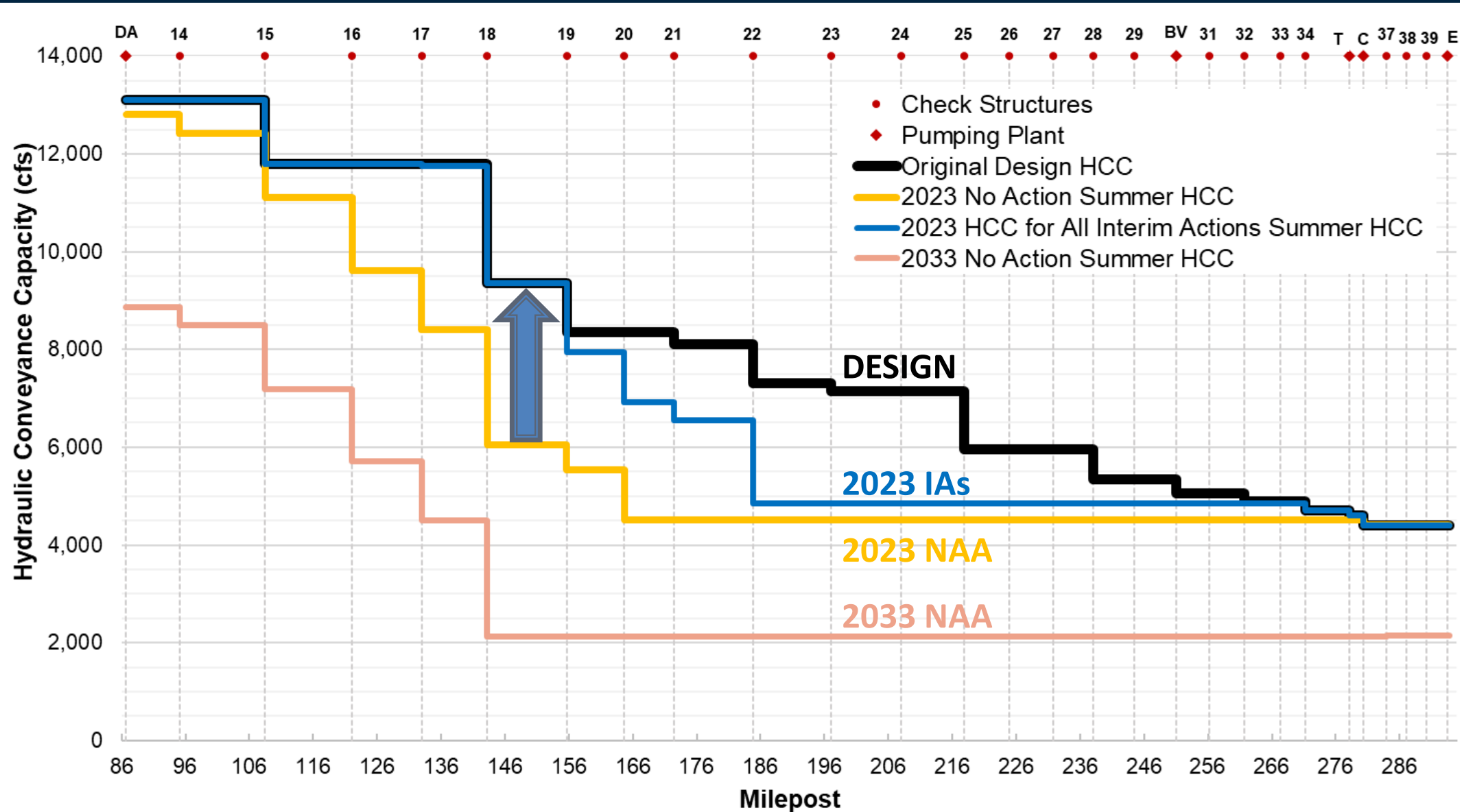


# Interim Action Projects - Cost and Schedule



Project	Total Estimated Cost	Construction Schedule
Check 17 Gate Removal (Joint Use Facility)	\$1.6M	Sept – Dec 2026
Pool 17&18 Liner Raise (9 miles) (JUF)	\$16.3M	Jan – Sept 2027
Pool 24 Liner Raise (12 miles)	\$24.7M	Aug 2027 – July 2028
Pool 20&21 Liner Raise (18 miles) (JUF)	\$21.4M	Jan – Dec 2028
Pool 31 Liner Raise (7 miles)	\$11.4M	July 2028 – March 2029

# Interim Action Projects Will Increase HCC



Note: No Action Alternative for year 2033 was evaluated under 75th Non-Exceedance Subsidence Percentile (NESP) conditions



# Long Term Actions - Draft Planning Goals

- Restore and maintain the original design hydraulic conveyance capacity (HCC) of the San Luis Canal (SLC) and Aqueduct to avoid water delivery and operational constraints caused by past and projected subsidence through 2085.
- Provide capability for diversion of CVP and SWP contract water supplies at designated locations in the SLC and Aqueduct.
- Rehabilitate, restore, and/or maintain operational flexibility and structural integrity of SLC and Aqueduct facilities that may be compromised by subsidence.



# Long-Term Actions Planning Schedule

Milestone	Timeframe
Identify Alternatives for Feasibility Level Analysis	Q3 – 2026
Geotechnical Investigations	Q3 – 2027
Identify Tentatively Recommended Alternative	Q2 – 2028
Initiate NEPA & CEQA Compliance	Q3 – 2028
Draft Planning Report For Federal Review	Q2 – 2029
Final Design of Initial Features Complete	Q2 – 2032
Secure Funding Commitments	Q4 – 2032
Begin Construction	Q2 – 2033



# Funding

## Reclamation Joint Use Facility Cost Share

- March 17, 2026, Department of Interior announced “The San Luis Canal will receive \$50 million to address subsidence issues affecting water delivery reliability.”
- Provides significant federal money for Joint Use Facilities; will enable interim actions to move forward.

## CA Proposition 4

- The Administration is proposing to use \$45 million for State Water Project subsidence repairs – the Interim Actions specifically.
- The proposal has been heard in both Assembly and Senate Budget Subcommittees; no stated opposition to the Administration’s plan.

# Questions