One Water and Stewardship Committee

# Authorize $80 million for additional project costs for the AVEK High Desert Water Bank Program

Item 8-3

September 11, 2023

# Outline

- Background
- Current status
- Changed conditions and costs
- Committee feedback
- Alternatives considered
- Remaining items
- Summary

# Background

Board authorized in April 2019

Capital costs up to $131 million

- Estimated project unit cost: $320/AF

Program size:

- Storage capacity of 280,000 AF
- Put/take capability of 70,000 AFY
- Would more than double existing direct pump-back

Agreement term: 2019 - 2037

- 20-year no cost option to extend

# Background

## Initial project design

- Pumped and gravity-fed recharge basins
- 23 recovery wells
- Two turnouts
- Off-site power upgrades not included

# Current Status

## Where we are today

- Provided about $65 million to date
- Completed construction of 10 recovery wells, turnout, and stage 1 recharge basins
- Could begin recharging this month (12,000 AF)
- Full project operation delayed to 2027 due to off-site power upgrades schedule

# Changed Conditions


Inflation has driven up costs

Design evolved to meet recovery target and implemented various design enhancements

Upgrades to off-site power distribution system needed to support project facilities

Different water quality conditions in deeper aquifer

# Changed Conditions


# Inflation has driven costs up

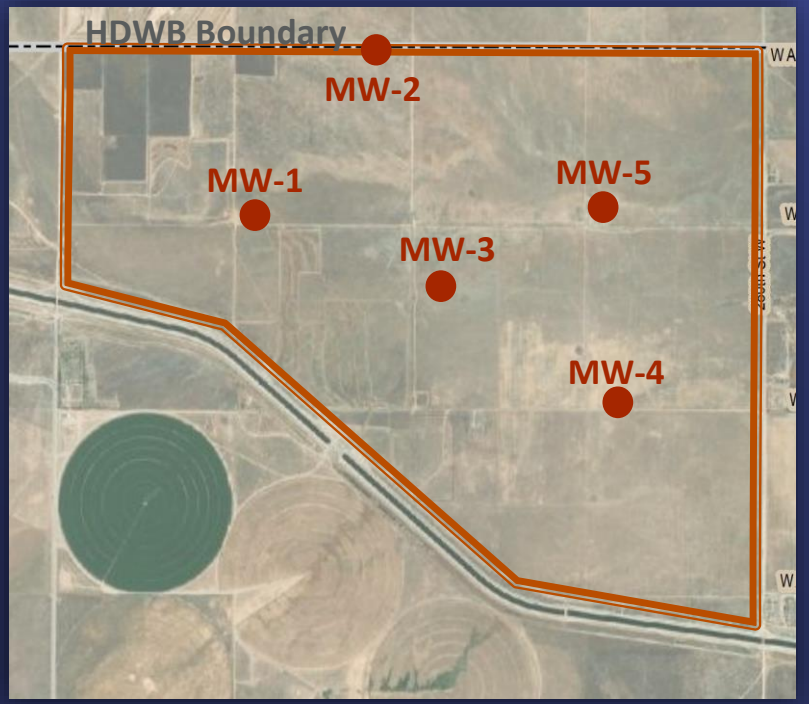
- Inflation of project costs
  - Increased material and construction costs
  - Supply chain issues affecting ability to acquire materials/equipment
- 2018 Capital Cost Calculation
  - Assumed an annual O&M cost increase of 3%
- 2022 California Construction Cost Index
  - Cost increase between 2018 and 2022 of 30%
- Estimated additional cost: $54 M
  - Assumes annual inflation rate of 8% for future construction

# Changed Conditions

## Wells

# Design evolved to meet program parameters

- AVEK drilled and tested five monitoring wells
  - Depth of ~500 ft
  - Testing indicated that water quality met all drinking water standards
- Updated monitoring well data and groundwater modeling showed need for deeper well design
  - Depth of ~1000 ft

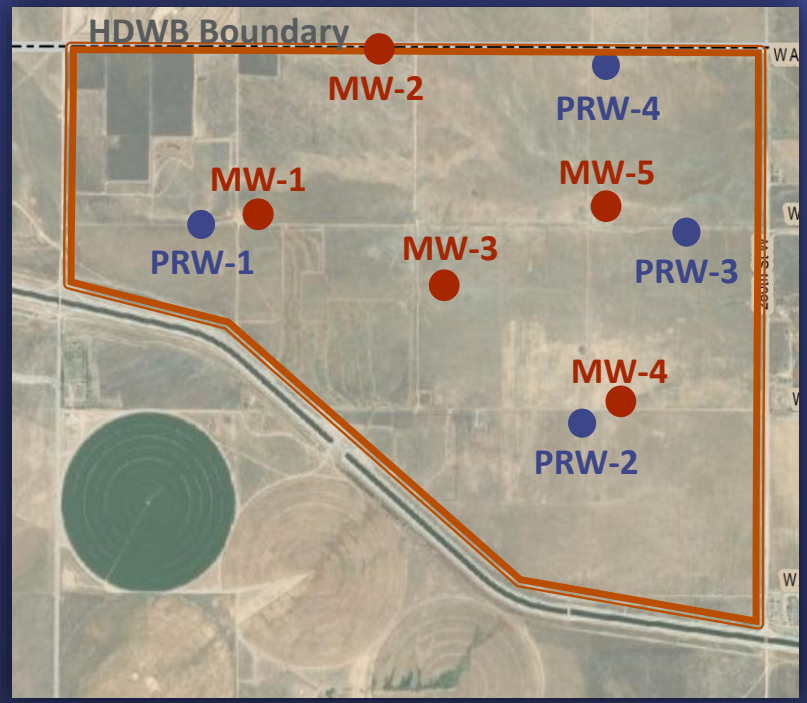


# Changed Conditions

## Wells

# Design evolved to meet program parameters

- Updated recovery (deeper) well data and modeling showed need for additional four wells
  - Total number of wells increases from 23 to 27
- Increased capital cost estimate: $29M

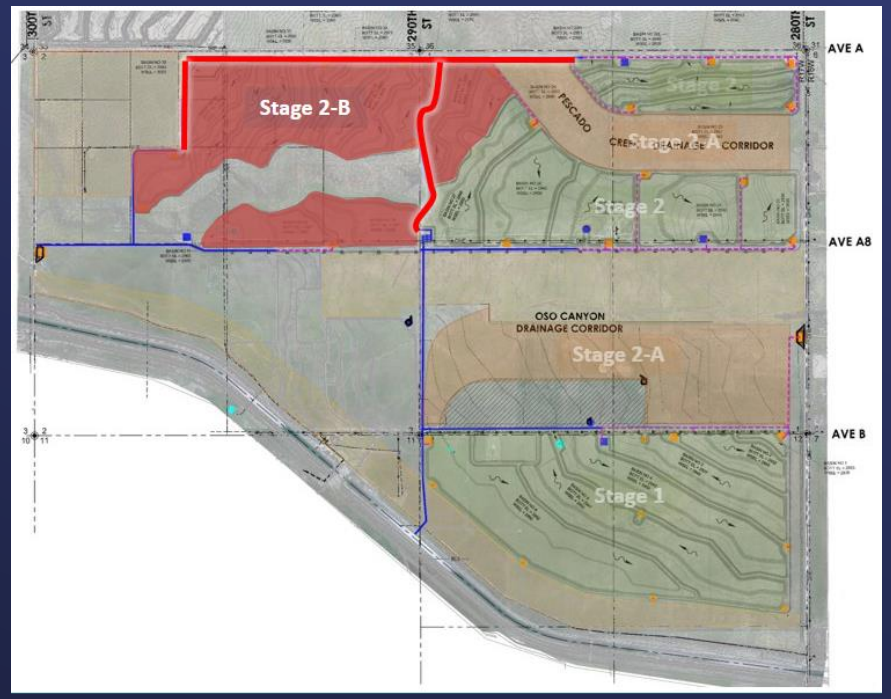


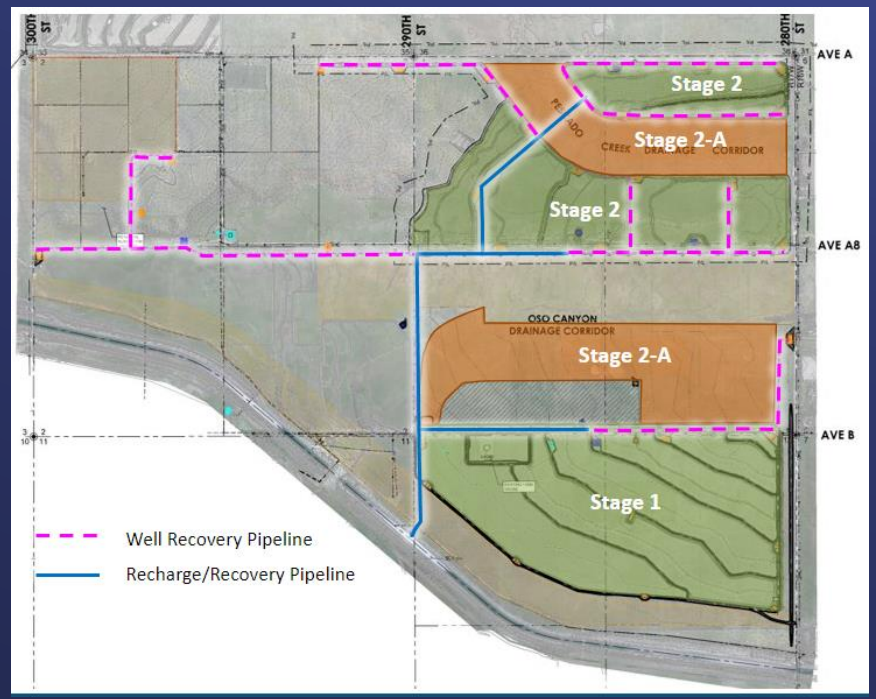
# Changed Conditions

# Recharge Basins

## Design enhancements

- Removal of pumped basins and pumping
  - Gravity recharge basins only
  - Increased berms
- Avoided an additional cost of about $27M



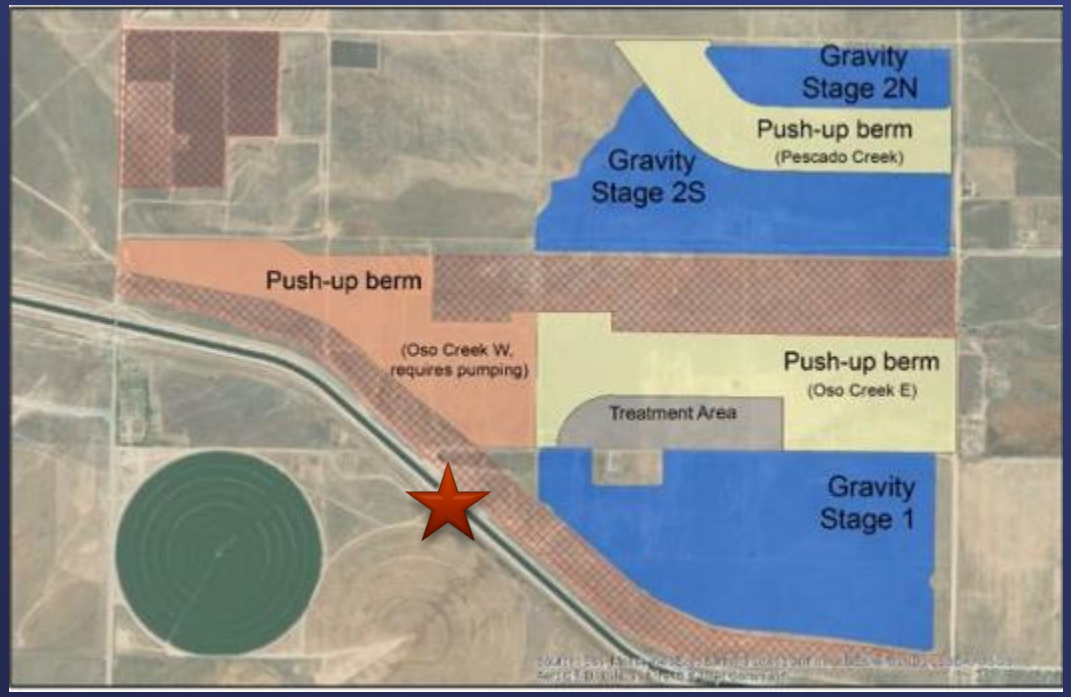



# Changed Conditions

Various

## Design enhancements

- Implemented flood protection and engineered-basins into design
  - Protects investment
  - Reduces downtime during wet periods
- Modified from two to one turnout structure
- Increased capital cost estimate: $13M



Changed Conditions

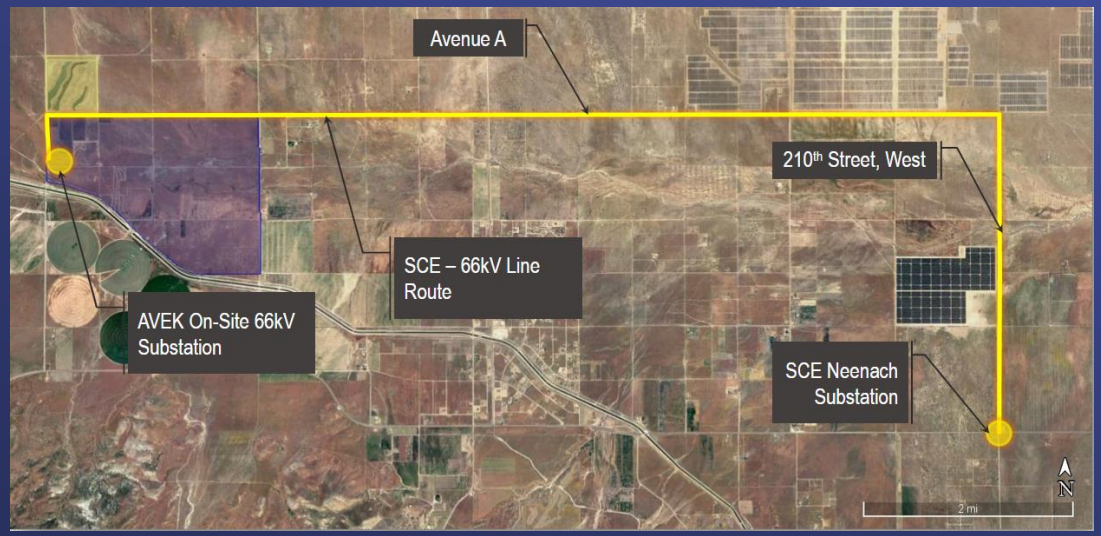
# Upgrades to off-site power needed

- Power distribution system consists of on-site and off-site facilities
  - On-site power costs included in 2018 estimate
  - Off-site power costs not included in 2018 estimate
  - SCE completed Method of Service study in 2022

# Changed Conditions

# Upgrades to off-site power needed

- Will be designed and constructed by SCE
  - Transmission Line
  - Substation
- Shared costs between SCE and AVEK (Metropolitan)
  - AVEK's share is $11M of $78M
  - SCE requires AVEK to enter into Letter of Agreement (LOA) and full payment before beginning design
  - Proportionate cost share may increase upon completion of LOA



# Changed Conditions

## Different water quality conditions in deeper aquifer

- Initial field investigation and testing
  - All water quality samples met Title 22 Drinking Water Standards in shallower wells
- Arsenic levels in deeper wells from 8 – 20 µg/L (MCL is 10 µg/L)
  - Naturally occurring
  - Modeling shows arsenic is widespread throughout the basin, more concentrated in the deeper aquifer
  - Treatment is required
- Nitrate levels in recovery wells from 2.7 – 5.9 mg/L-N (MCL is 10 mg/L-N)
  - Higher than ambient levels in CA Aqueduct
  - Looking into impacts to our source and treated water

# Changed Conditions

## Deferred request for treatment authorization

- Further groundwater modeling and analysis is ongoing
- Will better understand arsenic's behavior, evaluate nitrate trends, and identify other Constituents of Concern (COCs)
- Modeling will be used to optimize the treatment system design and evaluate potential impacts to nearby wells

# Changes in Cost

- Cost increases of $80 million (total of $211 M)

| Factors Contributing to Changes | | Estimated Capital Cost |
|---|---|---|
| Inflation | | +$54M |
| Design Enhancements | | +$15M |
| New and deeper wells | +$29M | |
| Gravity-fed recharge facilities | -$27M | |
| Various other changes | +$13M | |
| Off-site Power | | +$11M |
| Water Quality (Arsenic Treatment) | | Deferred |
| | **Total** | **$80M** |

Committee Feedback

# March 13, 2023 – One Water and Stewardship Meeting

- What are the impacts to Metropolitan's rates?
  - No measurable impacts to adopted budget
  - Overall long-term rates increase by 0.33 percent through bond financing
- What does the authorized budget of $131 million provide?
  - Discussed in alternatives considered

# Alternatives Considered

## Option 2

## Defer authorization of additional $80 million

- Request that AVEK pauses all future construction activities
- Metropolitan will pause reimbursement of future costs to AVEK
  - Provides additional time to complete groundwater modeling and select robust treatment facility
  - Reduces uncertainty of full treatment costs
  - Delays commencement of design of off-site power facilities and certainty of costs
  - Delays start of project operation
  - Further inflation driving costs even higher

# Alternatives Considered

## Option 3

# Stay within authorized budget

- Limit participation to stay within approved budget of $131 M (62%)
  - Storage capacity of 173,600 AF
  - Put/take capacity of 43,400 AFY
  - Cost does not include treatment; project share will decrease based on future treatment costs
- Need for additional 26,600 AF
  - In one year (2022) would have cost $30 million to acquire additional supply, if available

# Remaining items

- Return to Board to request authorization to amend agreement
  - Extend term by 20 years plus 20-year option
  - Negotiate credits for surplus purchased land and upsized facilities
  - Address impacts to nearby wells
- Return to Board with proposed treatment and cost
  - Additional amendment to agreement

# Summary

- Improves water supply reliability
  - Captures surplus SWP supplies in wet years and delivers supplies in dry years
  - Reduces dependence on Colorado River supplies in dry years
- Provides emergency reliability to SWP east branch dependent areas
- Provides greater operational flexibility to help meet demands
- Submitted strong Bucket 2 proposal to USBR
  - If awarded, will fund new elements (deeper wells, off-site power, future treatment)

# How are costs recovered?

## The operational function of the AVEK High Desert Water Bank within Metropolitan's system is supply

- AVEK's cost allocation is determined by the cost-of-service process
  - Facility costs are determined by operational function
  - AVEK's operational function for MWD's system is supply
  - AVEK costs are currently recovered through supply rate
  - For costs of service, it will be treated accordingly

Other similar programs serving a supply function include: Arvin-Edison Storage, Semitropic Storage, Kern Delta Storage, Mohave Storage, AVEK Storage, & AVEK High Desert Water Bank

# Board Options

Option #1

- Review and consider Addenda Nos. 1, 2, and 3 to the Mitigated Negative Declaration previously adopted by the Antelope Valley-East Kern Water Agency for the High Desert Water Bank;
- Approve changes to the design, construction, and operation of the Water Bank facilities;
- Authorize up to $80 million for additional costs associated with these changes.

Option #2

- Review and consider Addenda Nos. 1, 2, and 3 to the Mitigated Negative Declaration previously adopted by the Antelope Valley-East Kern Water Agency for the High Desert Water Bank, and (1) defer approval of the changes to the Water Bank, and (2) defer authorization of additional funding until the treatment and off-site power costs are known.

Option #3

- Do not approve the changes to the design, construction, and operation of Water Bank facilities and do not authorize up to $80 million for additional costs associated with these changes.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