



- **Board of Directors**  
***Water Planning and Stewardship Committee***

1/8/2019 Board Meeting

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9-2

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**Subject**

Review of the Antelope Valley-East Kern Water Agency High Desert Water Bank Program

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**Executive Summary**

This report provides additional information on a potential High Desert Water Bank Program (Water Bank) with Antelope Valley-East Kern Water Agency (AVEK) to store Metropolitan's State Water Project (SWP) supplies. The Water Bank was first brought to the Board's attention in September 2018. Under the Water Bank, Metropolitan could store up to 280,000 acre-feet (AF) of its SWP Table A or other supplies in the Antelope Valley groundwater basin in an account designated for Metropolitan. Metropolitan would pay AVEK for the capital costs for construction of monitoring and production wells, turnouts from the California Aqueduct, underground and aboveground pipelines, recharge basins, water storage, and booster pump facilities. These facilities are estimated to be \$131 million in 2018 dollars. Metropolitan would subsequently pay actual O&M, energy, and recovery usage fees to recover the water in storage. The Water Bank would improve water supply reliability during dry years or emergencies and provide greater operational flexibility to balance supplies and demand.

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**Details**

Background

Metropolitan's existing SWP groundwater storage programs provide the region with valuable supply benefits. These programs help Metropolitan manage surplus supplies and provide for dry-year regional reliability. They can also provide increased emergency reliability, particularly with direct pump-back of stored water into the California Aqueduct when needed. Existing SWP groundwater storage programs have performed well during recent droughts, producing more than one million acre-feet of water in the last 24 years. While these storage programs are cost-effective and provide Metropolitan with increased operational flexibility, Metropolitan could further benefit from a more diverse portfolio of storage programs moving into the future.

Some of Metropolitan's existing SWP groundwater storage programs contain risks that need to be managed. During the recent drought, the capacity to return water by exchange was significantly reduced during the low SWP allocations. Water quality has also been an issue with some of Metropolitan's groundwater storage programs. New and changing water quality standards can reduce the amount of water returned to Metropolitan. Lastly, none of the current SWP groundwater storage programs extend beyond year 2035. For continued long-term regional reliability, these programs will need to be extended or new programs developed.

AVEK is a SWP contractor that provides water to the Antelope Valley and represents a new storage program opportunity. Its 2,400 square-mile service area includes northern Los Angeles County, east Kern County and a small portion of Ventura County. AVEK has the third largest Table A contract amount of the 29 SWP contractors with a Table A amount of 144,844 AF. Served by the East Branch of the California Aqueduct, AVEK delivers both treated and untreated water to its customers. The proposed Water Bank's strategic location, downstream of the Edmonston Pumping Plant, provides an additional factor of reliability. If the Edmonston Pumping Plant or facilities upstream are damaged by an earthquake or shut down due to another incident, stored water could be

returned from the Water Bank to help maintain reliable deliveries to Metropolitan. The direct pump-back capacity of the Water Bank, when compared to programs that recover through exchange, can be more reliable and valuable during low supply or emergency conditions when exchange supplies may not be available.

In 2016, Metropolitan entered into a ten-year agreement with AVEK for an exchange/storage program. Under the exchange portion of the program, AVEK provides its unused Table A supplies over ten years to Metropolitan, and Metropolitan returns half of the water later through an uneven exchange at Banks pumping plant. The exchange is initiated by mutual agreement. When AVEK calls the water to meet its consumptive needs, there are no additional costs to Metropolitan. Under the storage portion of the program, Metropolitan is able to store 30,000 AF of its SWP Table A or other supplies in the Antelope Valley groundwater basin at its discretion.

#### Description of Potential Water Bank

To operate the proposed Water Bank, AVEK proposes to build and operate groundwater recharge and recovery facilities located near the bifurcation of the West and East Branch of the California Aqueduct. The Water Bank would have a 280,000 AF capacity to store Metropolitan's SWP or other available supplies. The annual storage and recovery capacities would be up to 70,000 AF per year. Similar to other groundwater storage programs, Metropolitan would be assessed a one-time 10 percent loss when water is placed into storage. A key advantage of the program is that AVEK would be able to return up to 70,000 AF per year by direct pump-back into the East Branch of the California Aqueduct. The program could also be expanded to include direct pump-back to the West Branch of the California Aqueduct. While AVEK would own the facilities, Metropolitan would have first priority to the return capability, which is critical during emergencies or dry years when SWP allocations are low.

Implementation of the Water Bank would require the construction of monitoring and production wells, turnouts from the California Aqueduct, underground and aboveground pipelines, recharge basins, and water storage and booster pump facilities. Metropolitan would pay AVEK for the capital costs of the project, which are now estimated at \$131 million. This estimate is currently under review by Metropolitan's Engineering Services and may be refined. Metropolitan would make payments based on a mutually agreed upon schedule related to construction progress. In addition, Metropolitan would pay for the actual operation, maintenance and power costs for the Water Bank facilities when used for Metropolitan's benefit. There are no costs to store the water. However, Metropolitan would pay AVEK a \$100/AF recovery usage fee on all the recovered water. The recovery usage fee would be escalated every year based on the Consumer Price Index (CPI) starting in 2018. Metropolitan would pay a minimum rolling average of \$2 million towards the recovery usage fee per year, starting after the project construction is complete. Any payments made in excess would be credited in future years to recovery usage fees. In total, staff estimates this storage opportunity would cost approximately \$320/AF (present value) for water stored and subsequently recovered. This revised estimate accounts for the 10 percent loss on deliveries into storage, updated capital cost estimates, estimated operating costs, and returning 70,000 AF in dry years.

Under the Water Bank, Metropolitan would have first priority to store its SWP Table A or other supplies. AVEK retains a secondary priority right to access the groundwater bank. Lower priority users may utilize unused capacity in the groundwater bank. Revenues collected from lower priority users would be shared equally between Metropolitan and AVEK. All program participants must meet all water quality requirements set by the Department of Water Resources. Based on groundwater testing, all constituents are below the maximum contaminant levels. Metropolitan and AVEK are also conducting a value engineering process to ensure the cost-effectiveness of the proposed facilities.

In summary, the potential High Desert Water Bank Program with AVEK would provide Metropolitan with improved water supply reliability for the region consistent with Metropolitan's Integrated Water Resources Plan. Further, this program would protect against the water quality issues now observed with other water banks, nearly double the total direct pump-back capability of current SWP groundwater storage programs, and allow for a contract end date in 2057. The coordination of each water agency's water supply resources would strengthen our ability to respond to future challenges and improves our partnership with a key SWP contractor. The draft terms for the potential Water Bank are included in **Attachment 1**.

**Policy**

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Metropolitan Water District Administrative Code Section 4203: Water Transfer Policy.

By Minute Item 50358, dated January 12, 2016, the Board adopted the 2015 Integrated Water Resources Plan Update

**Fiscal Impact**

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Up to \$131 million in capital costs for the construction of the High Desert Water Bank Program facilities. Payment of the take recovery usage fee of \$100 per AF (escalated by the CPI starting in 2018) and the actual operation, maintenance and power costs for the program facilities. In total, the estimated unit cost would be \$320 per AF.

  
Brad Coffey  
Manager, Water Resource Management

12/19/2018  
Date

  
Jeffrey Kightlinger  
General Manager

12/21/2018  
Date

**Attachment 1 – Contractual Term Sheet**

Ref# wrm12665242

**Term Sheet for the Potential  
Antelope Valley-East Kern and Metropolitan Water District  
High Desert Water Bank Program**

**Program Overview**

- Storage Capacity: 280,000 AF
- Storage Losses: 10%
- Put Capacity: 70,000 AFY
- Take Capacity: 70,000 AFY (Dedicated Well Extraction Capacity)
- Term: September 20, 2037, plus twenty-year, no-cost option to extend the agreement

**Program Costs**

- Estimated Capital costs: \$131 million to fund recharge basins, recovery wells, transmission pipelines, electrical, instrumentation and controls, and other necessary High Desert Water Bank facilities.
- The estimated capital costs include oversized power and transmission facilities. As AVEK develops additional banking capacity that uses the oversized facilities, the capital costs will be reimbursed to Metropolitan, plus interest.
- Capital payments are linked to actual construction costs and paid on a mutually agreed schedule. If capital costs exceed the estimated capital budget, Metropolitan can determine either scaling facilities to keep the costs within budget or paying the additional capital costs. Any unused funds will be returned to Metropolitan.
- Metropolitan is responsible for payment of actual O&M costs. If AVEK or other party uses facilities, AVEK or the other party are required to pay a prorated O&M cost.
- Metropolitan is responsible for paying the actual energy costs incurred to return water.
- Metropolitan shall pay AVEK a \$100 per acre-foot Recovery Usage Fee that will be escalated on the Consumer Price Index (CPI) starting in 2018.
- There is no cost to Metropolitan to put water into storage.
- Metropolitan shall pay a minimum rolling average of \$2,000,000 towards the Recovery Usage Fee (escalated on the CPI) per year, starting upon the earlier of (1) completion of the program facilities, or (2) first return of water to Metropolitan. Any payments made in excess of amounts owed during the year shall be credited in future years to Recovery Usage Fees. During the last five years of the agreement, Metropolitan may also use any available credits towards O&M, Recovery Treatment, or energy costs.
- Recovery Treatment Costs – If applicable, Metropolitan shall reimburse AVEK for actual capital and O&M treatment costs incurred for the return of Metropolitan-stored water.

**Other Key Terms**

- Metropolitan will have an exclusive first priority right to access High Desert Water Bank facilities. AVEK has an exclusive second priority right to unused capacity.
- Metropolitan and AVEK share equally on any lower priority banking by third parties.
- AVEK will enter into the necessary water storage agreements with the Antelope Valley Watermaster.