

EAGLE BEND METROPOLITAN DISTRICT

NEW SUSTAINABLE WATER SOURCE

HISTORY

The Eagle Bend Metropolitan District (EBMD) was formed in 1998 by US homes, the developer of the Eagle Bend area. One of the primary responsibilities of the EBMD is to provide water for irrigation of common areas within EBMD and to provide water to Heritage Eagle Bend (HEB) for irrigation of the HEB golf course. In 2008 EBMD formed the Eagle Bend Metropolitan District Water Activity Enterprise to conduct all activities related to providing water for those uses.

EBMD maintains a water enterprise fund which is separate from all general fund resources of EBMD. As HEB is the only customer of EBMD, all revenue received by the water enterprise fund comes from HEB except for a small amount of tax revenue that is transferred to the water enterprise fund each year.

At the time the Eagle Bend area was being developed the developer transferred all water rights to the City of Aurora. Therefore, EBMD does not own any water rights but instead leases the water it provides to HEB and the common areas through an agreement executed in 1998 between the City of Aurora and EBMD. This agreement will terminate at the end of 2028. EBMD has the option to extend the lease agreement through the end of 2038. If not extended in 2028, or at the end of 2038 if extended, EBMD will no longer have rights to any water to fulfill its responsibility of providing water as stated above.

WATER SOURCES AND USES

EBMD currently has three sources of water available: 1. Underground water; 2. The ECCV Connection; 3. The Buchanan Tap. The water from all of these sources is piped to the irrigation pond on hole number four of the HEB golf course. Once in the irrigation pond the water flows into the HEB pump house for irrigation of the golf course.

The underground water source provides raw water from the Arapahoe Aquifer utilizing two deep wells with pumps. The two wells are designated as the North Well, which lies along Aurora Parkway, and the South Well, which is located near the southeastern corner of HEB. The 2 wells are capable providing approximately 635,000 gallons per day.

The ECCV Connection is located east of Gartrell Road south of E-470. Water from the ECCV Connection is raw water that is provided by the WISE Partnership. Water may only be obtained from this source when authorized by the WISE Partnership. Therefore, this water source is not a reliable or predictable water source on a daily, monthly or annual basis. In 2018, EBMD was not able to obtain any water from this source during the irrigation season.

The Buchanan Tap is located in HEB along S. Buchanan Way. Water from this source is potable water provided by the City of Aurora which causes the cost of water from this source to be three to four times more expensive than water from the raw water sources. As this water is primarily to be used for domestic home use, the City of Aurora limits the amount of water obtained from this source.

In the nine years of 2010 through 2018, the HEB golf course consumed an average of 76,021,000 gallons of water per year. Of those years, in 2012 the golf course consumed the highest amount of water, which was 91,277,000 gallons. The year of 2014 consumed the lowest amount of water, 56,316,000 gallons. The highest amount of water consumed by the golf course in any one day is approximately 1,100,000 gallons. Therefore, on the peak consumption days there is a shortage of approximately 465,000 gallons of water for irrigation of the golf course.

ADDITIONAL WATER SUPPLY

As the existing water sources do not provide enough daily supply for irrigation of the golf course, EBMD has been studying alternatives for additional water supply. EBMD determined there were two viable alternatives: 1. Drill a third well to extract water from the Arapahoe Aquifer; 2. Contract with the City of Aurora for construction of a 1.55 mile raw water pipeline from the Saddle Rock Golf Course to the EBMD ECCV Connection.

The drilling of a third well is estimated to cost approximately \$1.5 million. Engineers estimate the additional well will produce approximately 260,000 gallons per day. The new well would be competing for water with the two existing wells due to its drawing water from the Arapahoe Aquifer and its close proximity to the two existing wells. Therefore, the third well may not produce as much water as projected and could also reduce the amount of water supplied by the two existing wells. Some also have a concern about depletion of the Arapahoe Aquifer over a long period of time as additional users withdraw water from the aquifer.

If the new 3rd well would produce the projected 260,000 gallons per day, there still would not be sufficient supply to meet the consumption needed for irrigation of the golf course. In addition to not meeting the water supply needs of the golf course, the 3rd well does not provide diversification of a new additional water source nor does it extend the existing water rights with the City of Aurora past 2038.

The raw water pipeline would be constructed in cooperation with the City of Aurora at a cost of approximately \$3.5 million. The pipeline would supply raw surface water from the City of Aurora reservoirs in the mountains. The City of Aurora will supply 700,000 gallons of water per day to EBMD thru the pipeline. If the pipeline is constructed, the EBMD rights to the water in the pipeline and the EBMD rights to all existing water supplies will be extended into perpetuity. In this case, "perpetuity" means the water rights are perpetual as long as HEB continues to operate a golf course. This amount of water per day would satisfy the daily and long-term needs for irrigation of the HEB golf course with a sustainable water source while preserving all water rights into perpetuity. The route of the pipeline is attached at the end of this document.

For supply comparison purposes, if a third well is drilled the projected total water supply available to EBMD would be 895,000 gallons per day. The pipeline, in combination with the existing two wells, will supply 1,335,000 gallons per day. The three wells would only supply 81% of the maximum daily need for golf course irrigation; the pipeline and two wells will supply 121% of the maximum daily need. In a City of Aurora declared "Stage I" drought condition, the pipeline supply would be cut 50%. (The City of Aurora did make such a declaration in 2002.) If that occurred, the pipeline and two wells would supply 90% of the maximum daily need for golf course irrigation. In that same situation, three wells would only supply 81% of the maximum daily need for golf course irrigation.

For cost comparison purposes, the third well is estimated to cost \$1.5 million and produce 260,000 gallons per day, which equates to a cost of \$5,770 per 1,000 gallons of supply. The contract construction cost of the pipeline is \$3.5 million and will produce 700,000 gallons per day, which equates to \$5,000 per 1,000 gallons of supply. Therefore, the infrastructure cost per thousand gallons of water is approximately 15.4% higher for the third well than for the pipeline.

On September 20, 2018 EBMD entered into a contract with the City of Aurora for construction of the raw water pipeline. The agreement was subject to EBMD approval of the construction cost once the final design was complete and construction bids were received. Construction bids were received during the summer of 2019 and on August 26, 2019 EBMD committed to the construction of the raw water pipeline. Construction of the pipeline, which is expected to be completed by May 1, 2020, is the responsibility of the City of Aurora.

Following is a summary of the terms of the agreement with the City of Aurora:

- The pipeline provides a new primary sustainable water source for EBMD.
- Supply of the pipeline water will be subject to City of Aurora drought restrictions.
- The City of Aurora will own, operate and maintain the pipeline at COA’s expense.
- EBMD retains all existing water rights/supplies.
- EBMD has the right to drill one additional well in the future.
- All EBMD water rights are perpetual providing HEB continues to operate a golf course.
- The City of Aurora will fund all cost above \$1.5 million.
- EBMD will pay the balance of the pipeline cost to the City of Aurora over 30 years.
- If additional users desire to obtain water from the pipeline a payment will be made to EBMD.

EBMD FUNDING AND WATER COST

Per the terms of the agreement with the City of Aurora, EBMD is required to pay a minimum “down payment” of \$1.5 million of the pipeline cost at the time the pipeline construction is completed. EBMD has approximately \$3.1 million of funds that could be applied towards the construction cost. As the amount of EBMD funds applied towards construction cost will affect the cost of water for HEB, the EBMD board of directors will determine the amount of down payment to be applied to the project in conjunction with the HEB board of directors.

An agreement between EBMD and HEB specifies the cost the water for HEB. The water cost for HEB has two components, a fixed cost and a variable cost. The following table shows HEB’s water cost by year for the average consumption in the years 2010 through 2018, the highest consumption year (2012) during those years, and the lowest consumption year (2014) during those years.

	----- Water Usage -----		
	Average	High	Low
Fixed Cost	\$228,000	\$228,000	\$228,000
Variable Cost	<u>\$135,000</u>	<u>\$162,000</u>	<u>\$100,000</u>
Total Cost	\$363,000	\$390,000	\$328,000

As mentioned above, EBMD is required to pay a minimum down payment of \$1.5 million towards the \$3.5 million of construction costs for the pipeline. Per the agreement with the City of Aurora, until the City of Aurora is fully reimbursed for the cost of the project, EBMD may pay any amount in excess of the annual scheduled payment at any time EBMD determines is appropriate.

The EBMD board of directors is considering paying a down payment greater than the minimum required \$1.5 million at the time the pipeline construction is completed. The following chart shows five down payment amounts and for each the remaining EMBD Water Fund balance, the projected fixed cost for HEB and the projected annual water cost savings for HEB. The annual savings is based on the average water consumption for years 2010 thru 2018.

Down Payment	EBMD Water Fund Balance	----- HEB Annual -----	
		Fixed Cost	Savings
\$1,500,000	\$1,600,000	\$220,000	(\$24,000)
\$2,000,000	\$1,100,000	\$195,000	\$1,100
\$2,250,000	\$850,000	\$180,000	\$16,000
\$2,500,000	\$600,000	\$165,000	\$31,000
\$2,750,000	\$350,000	\$150,000	\$46,000

The primary driver in determining the amount of down payment EBMD initially applies to the cost of the project will be the amount of contingency funds EBMD feels is appropriate to retain for future cost of maintaining the existing wells, pumps and other infrastructure. By paying a higher than required down payment, EBMD would experience lower annual City of Aurora payments and lower interest cost which EBMD would pass through to HEB as a reduction in fixed water cost.

SUMMARY

The following summarizes the attributes of the pipeline as a water source and the new agreement with the City of Aurora:

- Provides a new sustainable primary water source.
- Diversifies water sources: Results in 4 sources of water.
- Provides a long-term solution for water supply.
- Provides excess supply during normal years.
- Supplies 90% of peak demand during Stage I drought years.
- Extends the life of the existing water equipment and infrastructure.
- Reduces the risk of operating and maintenance cost.
- Is consistent with the City of Aurora water plan.
- Provides cost savings to Heritage Eagle Bend.
- Is supported by Heritage Eagle Bend HOA board of directors.

PIPELINE ROUTE

