

# Go with the flow

## Construction on Highland Canal reduces energy usage

By Sage Leehey

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Water enters the Highland Canal near Verdi from the Truckee River and then runs next to Interstate 80 until it hits the Chalk Bluff Water Treatment Plant. This canal was made back in the late 1800s and provides drinking water to the city of Reno.

There have been several different projects completed on the canal that have significantly increased the water flow through it and to the treatment plant over the last 10 to 15 years. Increasing the water flow leads to Truckee Meadows Water Authority's real goal: reducing its power bill.

"We replaced a large section of the canal with reinforced concrete box culvert where it paralleled the railroad tracks," said director of system planning and engineering Scott Estes. "And where it goes around Mogul—the subdivision there—that's been a big liability or possible liability for us for years, and we built about 7,000 feet of 69-inch siphon pipe that bypasses that entire area and carries the water underneath."

The construction done on the Highland Canal is expected to save TMWA about \$45,500 a year on their power bill. TMWA also received rebates from NV Energy's Sure Bet Incentive Program for the work done on this canal. They received \$82,556 back in 2012 from this program and received an additional check on April 16 for \$32,329. What these savings really came down to is reducing the amount of pumping needed to get water to the treatment plant.

"The capacity of that [original] canal was about 55 million gallons per day," Estes said. "We rebuilt almost the entire thing now, and we've almost doubled the capacity to about 95 million gallons per day. That's pretty much equal to the capacity of the treatment plant, so where we used to have to pump in the summertime up from the river, now we can meet 100 percent of the plant's capacity just by gravity flow through the canal."

This is part of a larger plan TMWA has to reduce their power bill, which is their largest operating cost. It was around \$7 million a year back around 2006 and 2007 and is now down to about \$4 million a year, according to Estes.

The original canal was dug by hand, giving it dirt walls and floor. Making the canal larger and reinforcing it with concrete were the most important of the improvements, but that improvement isn't the only reason TMWA was able to reduce its power bill, according to Estes.

"It's a combination of many things," Estes said. "One of the big things is that we have a great group of operators. They operate our distribution system and the treatment plants from the treatment plant locations, and these guys take energy management real seriously. They've done a great job. They really watch the pumping equipment out in the system pumping the tanks, so we're trying to operate mostly in off-peak times so we're not hit with additional charges on the electric side."



Scott Estes oversees water system planning, water system improvements and engineering design for Truckee Meadows Water Authority.  
PHOTO/SAGE LEEHEY

For more information about the Highland Canal, visit <http://bit.ly/1IRdF6R>.

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A photograph showing two identical glass jars side-by-side. The jar on the left contains clear, colorless water. The jar on the right contains a cloudy, white liquid, likely representing water treated with the 'Water Secret' product.

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