Understanding How TID Uses Water

Recent reporting and public discussion about irrigation water in Central Oregon have raised questions about how much water irrigation districts divert, how much crops consume, and what happens to water between the river and the farm.

Those are fair questions. They are also difficult to answer with a single number.

Tumalo Irrigation District believes our patrons and the public should understand how our system actually works, what our water supports, and what TID has done to reduce diversions while protecting agriculture and the environment.

TID serves a working agricultural community

Tumalo Irrigation District serves approximately 697 patrons and more than 7,400 irrigated acres in the Tumalo area. District water supports hay, alfalfa, garlic, lavender, carrot seed, and other crops, as well as pasture and livestock operations. TID manages more than 80 miles of open and piped canals and laterals.

Our system has been delivering irrigation water to the Tumalo area for more than a century. The first documented diversion from Tumalo Creek dates to 1883, and the project that ultimately became TID was organized under the Carey Act development program.

Where does TID's water come from?

Tumalo Creek is our primary live-flow source. It is driven largely by mountain snowmelt. As those flows decline during the early summer, typically in the first week of July, TID must then rely on its supplemental stored water in Crescent Lake, approximately 80 miles south of Bend.

That distinction matters. Crescent Lake is not an additional unlimited supply. It is essentially TID's savings account. Water, we do not have to withdraw today because conservation remains available to help the District and the environment later. That is one reason reducing conveyance losses has been so important to TID.

Diverted water and consumed water are not the same thing

One of the most important concepts for patrons to understand is the difference between diversion and consumptive use.

Water diverted from a creek or river is the water entering an irrigation delivery system. Crop evapotranspiration, or ET, estimates water transferred to the atmosphere through plant use and evaporation.

Those are two different measurements. Between the diversion and the crop are canals, pipelines, laterals, turnouts, fields, soil, and the operational water needed to physically move water through the system.

The calculation compares water entering an irrigation system with one component of what ultimately happens to that water. Modern satellite-based ET data are valuable. They help estimate crop consumptive use and build larger water budgets. But ET alone does not tell us how much water an irrigation system needs to transport water, nor does it tell us what happened to every gallon that was not consumed by a crop.

TID knows firsthand what conveyance losses look like

Historically, TID's open canals were constructed through highly porous, fractured basalt geology.

TID's System Improvement Plan estimated that, for every 50 acre-feet conveyed to patrons, approximately another 25 acre-feet could be lost through seepage and evaporation in the old system.

That does not mean TID's farmers were using that water. It means TID historically had to divert additional water to overcome the physical limitations of a century-old conveyance system and deliver water to patrons.

TID chose conservation instead of accepting those losses

TID has been piping open canals for decades. Piping allows us to deliver the same amount of water to the same patrons with substantially less water entering the system by reducing seepage, evaporation, and the amount of carry water required to operate an open canal.

The federal Natural Resources Conservation Service estimates that TID's broader modernization project can reduce canal losses by approximately 4.9 billion gallons during an irrigation season. Earlier Bureau of Reclamation analysis of the Tumalo Feed Canal project similarly found that piping would allow TID to divert less water while serving the same user base.

That is real irrigation efficiency. It is not achieved by telling a farmer that a crop should consume less water. It is achieved by reducing the amount of water TID must divert to deliver that crop's water.

Where does TID's conserved water go?

Conservation does not simply mean that TID finds additional water and uses it all to expand irrigation. TID has adopted a Conserved Water Policy under Oregon's Allocation of Conserved Water Program.

Previous conserved-water projects have already reduced TID's irrigation water rights while establishing corresponding instream protections. The Deschutes Basin Habitat Conservation Plan documents both reductions in TID's Tumalo Creek diversion right and the conversion of Crescent Lake storage to instream use during the winter months through conserved-water projects.

TID conserves water → TID needs to divert less → patrons receive more reliable delivery → legally protected water remains instream.

Why doesn't TID simply deliver the crop's ET requirement?

Because an irrigation district is a water-delivery system, not a crop.

ET can help estimate how much water a plant consumes. It cannot operate a canal.

TID currently operates a hybrid system of pipelines and open canals. The piped portion uses elevation to create pressure, providing substantially more consistent delivery with minimal conveyance loss.

The remaining open-ditch system requires water to physically flow through the canal network and suffers from seepage and other transit inefficiencies. TID's current operational analysis estimates the hybrid system requires approximately 120 cfs to operate properly while providing a 70% delivery rate. As more of TID becomes piped, those operational requirements decline.

Patron ponds improve system efficiency

Patron ponds are also a highly important part of TID's delivery system. They provide short-term storage between the District's continuous water-delivery system and a patron's irrigation schedule. This buffering allows TID to maintain steadier flows and pressure, gives patrons flexibility to irrigate when their equipment and fields are ready, and reduces sudden changes that can create spills or disrupt deliveries to neighboring patrons. Ponds can also receive water during low-demand periods and release it when demand increases. Although ponds may experience some evaporation or seepage, their overall operational value helps TID move water more consistently, respond to changing conditions, and make more efficient use of water already within the delivery system.

A simple way to think about TID's water

Imagine sending 100 gallons toward a field through an old earthen canal. Some portion reaches the patron. Some is lost along the way through the physical delivery system.

Now replace that canal with a sealed pipe. If substantially more than 100 gallons reach the patron, TID does not need to take as much water from the source to make the same delivery.

That is the conservation opportunity TID has been pursuing. It is also why directly comparing the amount of water diverted at the top of an irrigation system to the estimated crop ET at the bottom can give the patrons and the public a misleading picture of who is actually using the water.

What about water that isn't consumed by crops?

Water that is not consumed through ET does not necessarily disappear. Depending upon the location, geology, and irrigation system, non-consumed water can include surface flows. The timing and location of those flows matter when determining their effect on the overall basin.

For TID, reducing those losses allows us to reduce diversions and better control where conserved water goes—including obtaining legal protection for water left instream.

Conveyance loss, consumptive use, and basin-wide water loss are not interchangeable terms.

TID's goal: get more benefit from every diversion

TID's modernization program is not based on the idea that agriculture should receive unlimited water. It is based on something much simpler:

> **Deliver the water our patrons are legally entitled to as efficiently as possible, reduce the amount TID must divert to make those deliveries, preserve scarce stored water for later in the season, and protect conserved water for environmental benefits.**

That matters even more during drought. TID's 2026 irrigation season ended on August 31, reflecting the extraordinary supply challenges facing the District this year.

Every cubic foot per second we do not lose moving water through the system matters—to the rancher trying to grow winter feed, to the farmer producing a crop, to the livestock owner depending on pasture, and to the rivers and streams benefiting from conserved water.

The public conversation about Oregon water should continue. Satellite ET for crops, modern measurement, conservation, and improved water management should all be part of it. But we should measure the right things.

Diversion is not the same as consumption.

Crop ET is not the same as irrigation-system demand.

Water that does not become crop ET is not district or farmer waste.

Conservation is more than simply asking for agriculture to use less.

At TID, conservation means rebuilding a century-old delivery system so that we can divert less water to reliably serve the same patrons while protecting conserved water for the broader Deschutes Basin.

That is the work TID has been doing for decades—and it will continue to guide how we manage our patrons' water.