

Irrigation Leader

Second Edition



KENNEWICK IRRIGATION DISTRICT HOMEOWNER'S EDITION





Kennewick Irrigation District Mission

Statement: The Kennewick Irrigation District will deliver irrigation water, protect water rights and enhance supply, as authorized by Washington State statutes and federal laws, for the maximum benefit of our community.

KID Priorities: Service to Community and Care of the Environment | Stewardship of District Assets, Water Rights, and Supply | Risk Management and Fiscal Responsibility | Infrastructure Maintenance and Development

Leadership Staff:

Chuck Freeman, *District Manager*
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Jason McShane, *Operations & Engineering Manager*
Seth Defoe, *Land & Water Resource Manager*

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Water Off Hours:

Monday–Thursday (closed on Fridays)
8:00 a.m.–5:30 p.m.

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Kennewick, WA 99337

 /KennewickIrrigationDistrict

 Kennewick Irrigation District

 kennewick.irrigation.district

 kid.org

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Irrigation Leader

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COVER PHOTO:

Kennewick Irrigation District Main Canal
Photo by Dana Hernandez



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Letter From District Manager Charles Freeman:



Why you are in the district:

Your property lies within the KID boundaries established decades ago by community leaders in agreement with Reclamation. The size of the district is 20,201 currently irrigated irrigable acres, which is inside a larger project boundary of over 55,000 acres. Our water right limits the total amount of acres we can irrigate at any given time.

KID was initially built to serve the agricultural community in the Tri-Cities area. Today, the majority of our customers live in residential developments, and the shift from farmland to urbanization is expected to continue into the future. This presents challenges because the canal system was designed for farmers who had to order their water. KID balanced the system with an agricultural demand curve, not an urbanized, on-demand system.

Having over 25,200 active accounts that represent over 60,000 diverse individuals, 12,000 acres of agriculture and 9,000 acres of urban, rural and residential customer acres is challenging, and we staff accordingly. During the water season from April 1 to around mid-October, KID has staff on a 24/7 schedule. We have 62 dedicated employees who deliver water and make repairs on a system that has 74 miles of open channel canals, 300+ miles of piping, and over 120 pump stations. We have a Customer Service Department that is structured like a call center. You can call it to report a leak; poor water pressure; or, in times of emergency, a flood. Customer service will dispatch maintenance crews to address your issue. After hours, we have an answering service that will provide your information to the staff working the after-hours shifts.

The KID Board of Directors and staff are community members and your neighbors. We are stewards of a precious resource and an integral part of the economic vibrancy of our community. I welcome you to our district. ■

As the district manager, I would like to welcome you to the Kennewick Irrigation District (KID). KID was originally formed as a special purpose district in the state of Washington in 1917, but it originated much earlier, dating back to the late 1800s. The KID of today began in the early 1950s, when the Bureau of Reclamation, in partnership with the district and water users, built the canal system used today.

KID is one of six Reclamation Yakima River Basin Projects. The others are Kittitas Reclamation District, Sunnyside Valley Irrigation District, Roza Irrigation District, Yakima Tieton Irrigation District, and Wapato Irrigation District, which is operated and maintained by the Bureau of Indian Affairs. Our water right sets the irrigation season for us to deliver 102,674 acre-feet of water from April 1 to October 31 in any given year. KID is a prorable district, meaning that in times of drought, the water available to KID decreases. Numerous factors, such as snowpack, snowmelt, reservoir levels, and return flows are used to determine the degree of proration.

Customer Service



KID headquarters in Kennewick, Washington.

Our Customer Service Department is a vital part of the Kennewick Irrigation District (KID). We are here to service you in a variety of ways, including answering calls and e-mails regarding questions, complaints, concerns, and suggestions; arranging service calls when necessary; and helping with account activities, including payments and billing questions. The most important task is answering each call that comes in to our office. Customers call in with requests, delivery system changes, billing questions, outage reports, water damage reports, and many other matters.

Each April, our customer service team averages more than 22,000 calls in 24 working days, including Saturdays. April is the busiest month because water is coming on and thousands of payments are made. The return of water to our system triggers a large number of calls about breaks, leaks, and floods. This is inevitable, because many problems that arise over the winter cannot be detected until the water arrives in your system.

The difficulty of water start-up varies based on the winter weather and the way customers maintain their personal irrigation filters and pipes. When customers ask why we did not fix these issues while the water was off in the winter months, we are happy to have the opportunity to share with them how breaks can occur and how they can best protect their own system.

The Customer Service Department is an important communication link between customers and the operations team. The customer service team takes reports of issues that need to be addressed from customers and communicates those issues to the operations team. In emergency situations, when safety or property damage is possible, customer service can call out by radio or cell phone for immediate help.

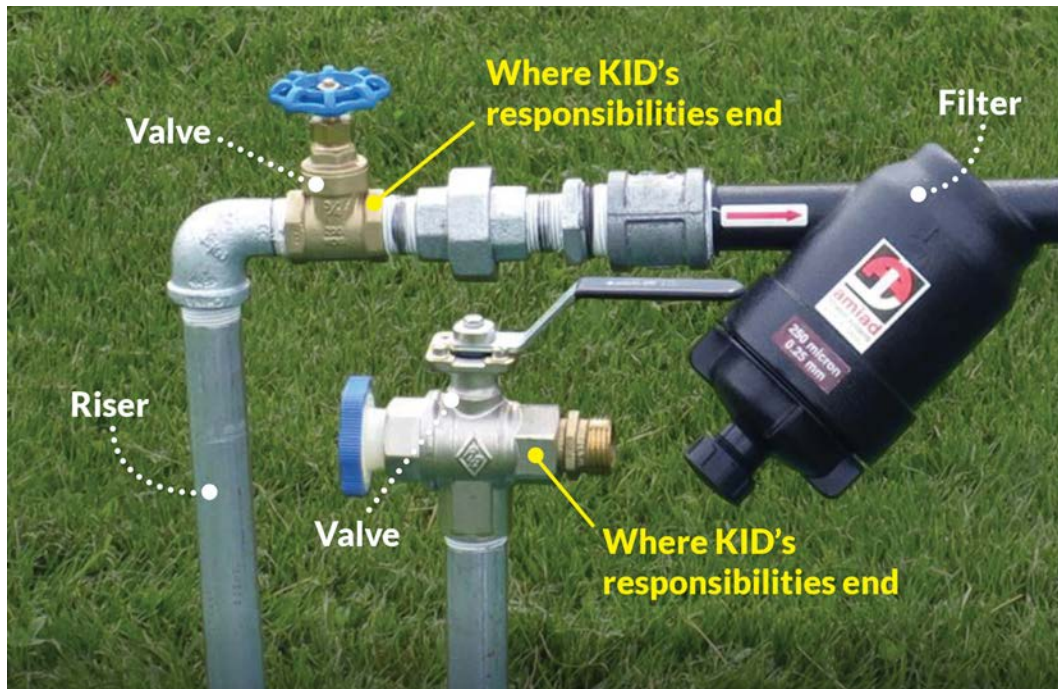
During July and August, warmer temperatures cause algae growth in the canals, creating plugs and blockages that affect water deliveries. We encourage customers to call and report low water pressure or outages. This helps guide our operations team to areas needing attention and prevent damage that could occur if blockages are unreported. These calls are also an opportunity to advise customers to clean and check their filters to avoid a delay in water delivery and possible damages to their system.

The Operations and Customer Service Department work together to update the water status map on our website with current outages and repairs. This map is updated based on repairs that are reported by the operations team and calls received from customers. The map informs customers about the status of their water without having to call in. KID customers can type in their address and get information about their water delivery or outages affecting their water delivery.

Other tasks handled by customer service that might not be observed by most customers include working daily with more than 140 private line area water masters, partnering with Benton County to ensure property ownerships are correct, and acting as support staff to the Operations and Engineering Departments.

When temperatures begin to drop in October, incoming calls begin to slow down. As less water is ordered and used, sprinkler lines are blown out, and water is turned off, some of the Customer Service Department's attention is focused inward on providing assistance to other departments. No matter the time of year, customer service is here and happy to help you. ■

KID's Responsibility Within Your System



It is important to understand what the customers' responsibilities are within their system and the role of the Kennewick Irrigation District (KID).

- The customer is responsible for their sprinkler system and all maintenance, including the filter within that system.
- KID is responsible for the riser and valve that provides irrigation water to that system. ■

This photo illustrates what the riser and valve may look like. Risers and valves vary in appearance.

How to Report a Problem

Our Customer Service Department can be reached during business hours for issues that may occur during the water season and after water has been turned off.

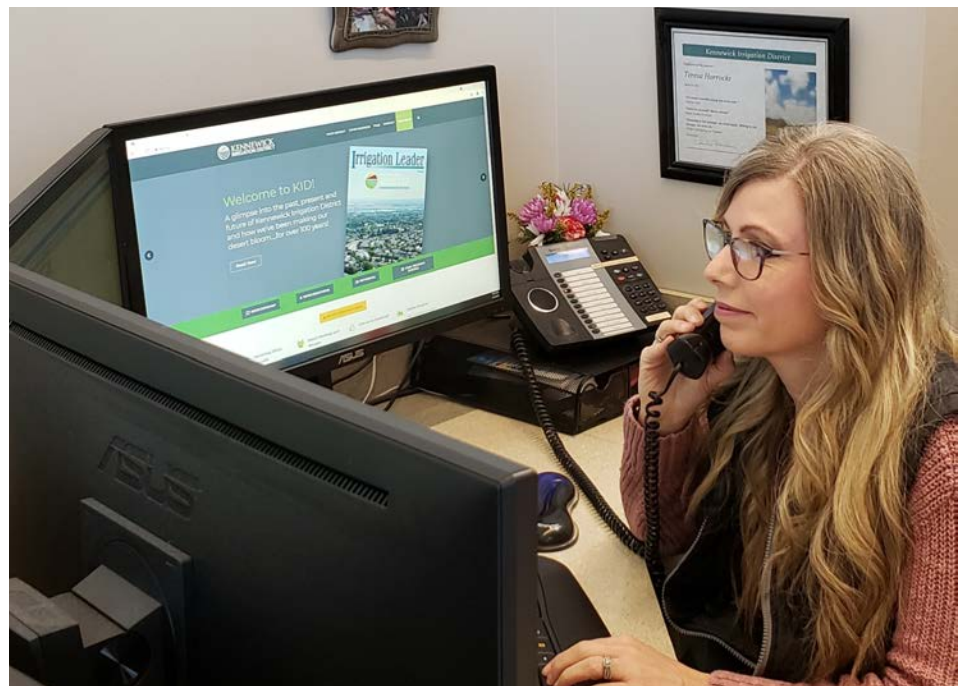
1. You can call our office during business hours at 509.586.9111.

Summer hours (March–October):
Monday–Friday 8:00 a.m.–5:00 p.m.

Winter hours (November–February): Monday–Thursday,
8:00 a.m.–5:30 p.m.

2. If you have an emergency after business hours, call our after-hours number at 509.586.8000 to reach our answering service.

3. You can e-mail customer service anytime at customerservice@kid.org. However, please be aware that e-mails are read during business hours. Please call our after-hours number at 509.586.8000 to report a problem.



4. If you see a burrowing animal hole or activity near our canal, we have a button on the homepage of our website at kid.org to report such matters. This button will direct you to a form you can fill out to report

the activity; you can also attach a photo. Once submitted, this form will be sent to our customer service team. Operations personnel will be dispatched to investigate and take action if necessary. ■

Training Your Lawn

Tips for training your lawn to need less water in times of drought

How Much Should You Water Your Lawn?

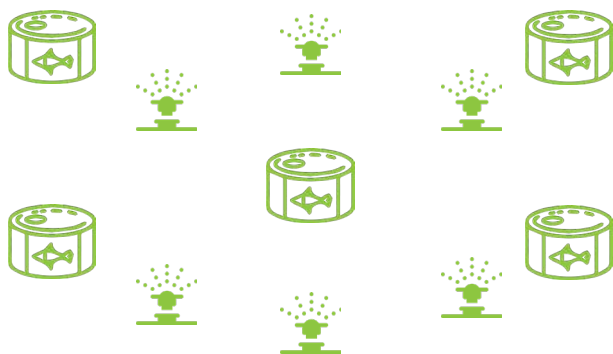
To promote drought resilient lawns

We recommend to water less frequently but for longer durations to cultivate a deeper root system.



THE TUNA CAN TEST:

How to measure the water your lawn is receiving.



Test:

1. Check to make sure sprinkler heads are working properly.
2. Take 4 or 5 round, flat inch high tin cans with vertical sides (tuna cans work well) and set them around the area that you wish to measure.
3. Turn on sprinkler system for 15 minutes. At the end of that time, collect the cans and measure the depth of water in each. Add the amounts together and divide the total by the number of cans used. Divide that number by 15. The result is the number of inches of water per minute that your sprinkler system is putting on that part of the yard or garden.
4. If the water allotment for a water day is $\frac{1}{2}$ ", for example, and your sprinkler system puts out $\frac{1}{1000}$ " of water per minute, you would need to run your sprinklers for only 15 minutes, every other day, to reach the total water allotment.
5. If you have different kinds of sprinklers on different areas, measure them separately. They probably have different flow rates and need different amounts of water time.

Lawns and Landscapes can be Trained to Need Less Water

- 7" – We Live in a Desert (our area averages around 7" of precipitation annually)
- The Goal – To apply enough water to penetrate the root zone
- Water Deeply – Timing your watering schedule for when it is needed encourages roots to grow deeper



Grass and Soil Types:

Grass Type:

Generally, bluegrass lawn should be watered to moisten the soil 6-8" down.

For most other grasses, the water should penetrate 8-12"

Soil Type:

- Sandy soils, 1" of water will penetrate 12" of soil. In general, sandy soils may require watering 3 times per week for approximately 20 minutes each time
- Loamy soils, it will penetrate 6-8". In general, loamy soils may require watering 2 times per week for 30 minutes
- Clay soils, it will penetrate 4"

Prevent Water Waste

Use Every Drop!

- Sweep driveway instead of spraying it clean with water
- Reuse 'gray' water from tubs, basins and laundry to apply to vegetation
- Check to verify sprinkler system is operating properly, specifically looking for broken sprinkler heads or leaky valves
- Turn off sprinklers in rainy or windy conditions
- Use a bucket, sponge and hose with a sprayer on the end when washing the car
- Make sure faucets and hoses are turned off completely when not in use
- Regularly check that sprinklers are aimed properly to make sure they aren't watering streets and sidewalks ■

TOGETHER, WE CAN HELP PREVENT A TRAGEDY

➔ Community Effort



Drowning is the second-leading cause of death in children ages 5 to 14, according to Safe Kids Worldwide

Constant adult supervision for children in or around

water is the number one safety tool against drowning

Parents and caregivers can teach children the dangers of irrigation canals. When near a canal, please take every safety precaution

➔ Health & Safety



Stay off canal roads and avoid entering the irrigation canal at all times, even when canals are empty

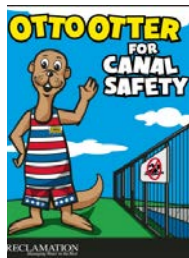
Always walk your bike and leash your pets near canals

Do not ingest irrigation

water and avoid letting children and pets run through the sprinklers. Irrigation water is raw river water and may contain harmful microbial contaminants

Do not use irrigation water to fill pools or pet bowls

➔ Otto Otter



Otto Otter is the Bureau of Reclamation's canal safety mascot. Kennewick Irrigation District offers canal safety presentations aimed at educating elementary aged children on the dangers of canals.

If you would like this message brought to your school or after-school program, contact Matthew Berglund, Public Relations Coordinator, at **509.586.6012 ext. 128** or by visiting kid.org/contact. Coloring books are also available with school presentations and accessible online at:

usbr.gov/pn/about/otto/graphics/colorin_gbook.pdf.



CANAL SAFETY

Canals are not for play -- stay away!

Canals are specifically designed to move water to homes, farms and businesses for irrigation and although they look like an inviting place to swim or play, the water can be quite hazardous. Swift undercurrents and turbulence can also drag you under and keep you there, even if you are an excellent swimmer.

The surface of the water may look calm but the speed of the current can vary depending on the location, sometimes reaching up to 3 miles per hour, or 4.5 feet per second. As a public safety example in 2012, a child's shoe was dropped into the canal to provide a visual of how fast the water travels. In 2 minutes, the shoe traveled 540 feet and within 5 minutes, it was about a quarter mile away from where it was dropped!

Debris can also collect in a canal, unseen in the dark water. Examples include: Weeds, branches, tires, chunks of metal and yes, even cars!

The best way to be safe from canals is to stay away. It's not only dangerous for children; it's hazardous for everyone, including your pets. Stay out.

If you see someone fall into a canal, do not attempt to rescue them yourself. Algae can build up along the walls of a canal, making it extremely slippery and hard to climb out. Instead, call 911 immediately.



So, You Live in a Private Line Area

When the Kennewick Irrigation District (KID) was created, it was predominantly agricultural in nature. Over the decades, agricultural farms were sold and subdivided by developers. For instance, a 40-acre orchard served by a single turnout became 160 single-family homes. This process was repeated hundreds of times, resulting in over 20,000 unique parcels of land.

Today, when an orchard subdivides, KID requires the irrigation system component of the subdivision to meet American Water Works Association (AWWA) standards and KID standards. Thirty-plus years ago, a developer who subdivided an orchard was not required to meet AWWA or KID standards and often opted to install a system that would not meet today's standards. For more than 4,000 parcels, this resulted in the creation of private line areas that are served by irrigation infrastructure that the public (KID) does not own. The developer may have selected this avenue in order to save costs.

A developer or even a homeowner may have inadvertently severed a distribution line that served another neighborhood

or even a section within the neighborhood, resulting in parcels becoming isolated from the system. If easements exist that allow access to the distribution system, KID may be able to help.

KID could also help if the private line area system is interested in public ownership of the system. In 2017, the KID board of directors approved policy 2.43, the Private Line Area Conversion Fund. This fund is front loaded with \$1.5 million that will be used to bring deficient, failing private systems up to current standards. If the neighborhood is supportive, KID will assess the participating customers a surcharge over a 5 to 10 year period to bring the system to current standards. Alternately, KID can defer these surcharges by up to 10 years and collect when the property changes ownership. Once an agreement is reached, KID crews will construct the new system, or KID will elect to bid it out and hire a contractor to execute construction.

Interested in learning more? Please contact our Engineering Department at 509.586.6012. ■

Assessments: How Billing Works

Kennewick Irrigation District (KID) delivers irrigation water to 20,201 acres of land and to more than 60,000 customers. In accordance with state law, customers receive assessment bills each year by April 1. Customers can pay the assessment in full or divide the assessment into two payments; in that case, the first half is due April 30, and the second half is due October 31.

The assessment pays for the irrigation services provided by KID to deliver water to the irrigable parcels. The assessment is determined by the customer's parcel size and the infrastructure used to deliver water to the parcel. For the base rate and charges breakdown, visit kid.org/yourdistrict/rates.

Assessments are a direct lien against the property, and failure to pay results in foreclosure. Foreclosure is Washington State law; it is not an option that KID chooses. KID charges a delinquency fee on May 1 and November 1 for past-due amounts and an interest rate at 1 percent per month, pursuant to state law. KID has a program through which a customer may request forgiveness of up to \$40 in penalties and interest, but this request is only valid once during a customer's ownership of a piece of property.

Assessments can be paid by a customer's mortgage company. However, KID only has a legal relationship with the customer/land owner and does not have a legal relationship with mortgage companies. If the mortgage company fails to pay or pays an assessment late, it is the customer's responsibility to pay the assessment and any account fees, late fees, penalties, or interest charged to the account. To find out if your mortgage company is paying the assessment, contact them and ask to speak with the escrow or tax department.

Government fees are set and collected to pay for daily operating costs, maintenance for aging infrastructure, and capital improvement projects that extend the life of our infrastructure and improve the system and to pay our staff. We assess our customers the proportionate share of all costs to maintain and upgrade the system.

If you have questions about your assessment, our Customer Service Department is always happy to help. You can contact customer service by calling 509.586.9111 or by emailing customerservice@kid.org. ■

How Helping Hands Takes the Burden Off Their Shoulders

Sooner or later, we all need a helping hand. That's why the Kennewick Irrigation District (KID) participates in a program that makes it easy to help others who may be in danger of losing their property because they can't pay their KID assessments. There are many reasons someone might find themselves in need of help: medical emergency, family problems, or unemployment. No one expects those kinds of problems, and few people can handle them alone.

The Helping Hands program is funded by a portion of the revenues collected from delinquency fees as well as donations from customers and concerned neighbors. In 2011, KID started charging a delinquency fee on all past-due accounts. Thirty percent of the delinquency fee KID collects goes toward funding the Helping Hands program.

Barbara in Kennewick shared how KID's Helping Hands program has helped her for the past 4 years.



"Everything gets stretched real thin. That's why they help me. They've been helping me get that burden off my shoulders. I'm sure a lot of people don't realize it."

Ronald in Finley told us the program has helped him with utility costs. "As a retiree, it helps me share the expense of what utilities cost. Things have gotten so bad with health care and my wife is in dire straits with

her health. We have had to rob Peter to pay Paul."

Customers interested in donating to the Helping Hands program may do so by using the option available on their payment coupon or by coming in to the office located at 2015 S. Ely St., Kennewick.

All donations are tax deductible, and every dollar donated goes to a customer in need. ■



Elections

Kennewick Irrigation District (KID) welcomes community members who want to get involved with their district. Consider attending board meetings or visiting our website to read minutes or other interesting information about the district.

Voting is another way to be involved. KID is a special purpose district formed over 100 years ago, and irrigation district elections differ from general elections. If you received this magazine, you are probably qualified to vote or run for office. If you have questions or want to get involved, please feel free to reach out to us.

Your Board of Directors

KID is directed by a five-member board, elected by you. Directors attend board meetings and serve on committees, such as the Finance, Realty, or Operations and Engineering Committees. The board sets policies to guide staff in fulfilling KID's mission.

Director and Elector Eligibility

Irrigation district elections are governed by Washington State law (RCW 87.03). Candidate and elector (voter)

eligibility requirements are the same: You must be at least 18 years old, a U.S. citizen, a Washington State resident, and hold title or evidence of title to assessable land in KID.

To run for a director seat, visit kid.org/election in September or October for candidate information and forms. Candidate petitions are due by 5:00 p.m. on the first Monday of November.

Your Vote Matters

You can vote in person at KID's office from 1:00 to 8:00 p.m. on the second Tuesday of December. Absentee ballots will be issued to any elector who signs and returns an absentee ballot request form before election day, certifying they cannot conveniently be present to vote in person. These forms will be available in November, on KID's election webpage or by mail.

Open Public Meetings

Board meetings are open to the public, and held at 9:00 a.m. on the first and third Tuesdays of each month. Zoom information is posted before meetings on kid.org/about-kid/board-committees. ■

Planning for Drought

The Kennewick Irrigation District (KID) serves up to 20,201 acres of agricultural and residential customers in a region of Washington State that receives less than 10 inches of precipitation per year on average. These challenging conditions make irrigation necessary to grow economically valuable agricultural products such as cherries and grapes and to grow urban shade trees that help to cool residential areas and increase the quality of life in the urbanized parts of the district during the hot summer months.

KID depends on water from the Yakima River, which receives its water from the eastern slopes of the Cascade Range. Approximately 140 inches of precipitation falls in the Cascade Range per year, feeding the Yakima River through numerous tributaries and providing flows for fish, farms, and residences all the way to the Tri-Cities.

During years of average precipitation and temperatures, there is enough water to supply the needs of farms and residences in the Yakima basin. However, during drought conditions, when insufficient precipitation fails to fill the storage reservoirs or the snowpack fails to materialize or melts too quickly, water shortages threaten agriculture and our quality of life.

In 2015, a severe drought occurred in the Yakima basin, reducing water supplies for prorated water right holders by over half. The drought was due to a snowpack drought—a normal amount of precipitation fell in the mountains, but it fell as rain instead of snow. The reservoirs in the Yakima basin can only hold enough water to store up to 30 percent of the total annual runoff. Snowpack plays a critical role in complementing water storage by providing water during the spring and early summer parts of the irrigation season.

Although KID holds a mostly proratable water right, it is not held to the strict prorated annual quantity that other proratable districts receive, due to a unique clause in our contract with the Bureau of Reclamation. This clause allows KID to not only divert water from the proratable bucket, but to also divert return flows that are not a part of the proratable

bucket. *Return flow* is water that returns to the river after being diverted by other users and becomes available for diversion by KID and other users downstream of Sunnyside Dam.

This ability to divert return flows has historically allowed KID to receive a more reliable water supply than the other proratable districts, but large-scale water conservation projects implemented over the past 20 years have greatly reduced available return flows. Currently, during drought conditions, KID is not receiving water when it is needed most by our customers, during the hot summer months of July and August, which are critical to plant growth.

Current conditions and future potential climate change effects have created a great challenge to protecting and enhancing the KID water supply. To guide the district through the difficulties of drought conditions, KID adopted a drought plan policy. The on-the-ground realities of the 2015 drought caused KID to re-evaluate the drought plan. Many of the goals and actions in the plan were found to be infeasible for KID with its unique position in the Yakima project as a return-flow district. The plan was rewritten in 2019 to better support goals and actions that will give KID staff the tools needed to make the next drought that hits easier for our customers. Actions such as calling on reservoir storage will provide KID with more water in a drought, although it will have the negative effect of reducing water supplies for other users in the Yakima basin. Currently, KID is in talks with our partners at Reclamation, the Washington State Department of Ecology, and the Yakama Nation to discuss options to protect KID's water supply and to enhance fish habitat in the lower river. Potential options that could have benefits to both supply and habitat include the addition of electric pumps at Chandler pump station and the construction of a central storage reservoir in the district. Projects such as these will replace water taken from KID by federally funded up-basin conservation projects and will greatly enhance the reliability of KID water supplies during a drought, which will reduce the need to call on storage in future droughts. ■







ABOVE: Date unknown. Original caption: Ditch Digger: without this little device, there would have been no Kennewick!

RIGHT: We have come a long way in promoting and educating about canal safety. Please remember: Canals are not for play—stay away!



The History of the **KENNEWICK IRRIGATION DISTRICT**

Irrigation in the Yakima Valley has a long and productive history. In the Tri-Cities area, the feasibility of diverting Yakima River water out of the river to the surrounding farmlands was first studied in 1888 with formation of the Dell Haven Irrigation District.

The first water rights for diversion of Yakima River water for the present-day Tri-Cities area came in 1891, when the Yakima Irrigation and Improvement Company obtained a 300-cubic-feet-per-second right on the south bank of the Yakima River, known as Horn Rapids.



Irrigation vital to first settlers *set 3/14/71 1888*

From the day the first settler located on the vast and semi arid stretches of what are now Franklin and Benton counties, irrigation was recognized as the most urgent and vital need.

It was quickly discovered that on the land and water brought to the rich volcanic soil anything adaptable to local climatic conditions could be grown abundantly.

As far back as 1888 the Dell Haven Irrigation district was formed in the Yakima Valley and within four years work had been started on what eventually was to be-

come the great Kennewick Canal.

By 1906, five irrigation projects were in operation — the Kiona, Kennewick, Richland, Columbia and Two Rivers although the latter was a pumping proposition, power being furnished by the fall of Snake River at Five-Mile rapids. The Two River interlocked with the Columbia canal.

Oldest ditches in the valley were in Kiona, taken out of the Yakima two miles above the village of Kiona, and the sources seven miles below Kiona. Both were started by the same company in 1882.

1893

1901

The Yakima Irrigation and Improvement Company conveyed the Kennewick Canal (now known as the Columbia Irrigation District Canal) system to the Dell Haven Irrigation District, and canal construction was completed. The present-day Canal Drive was named for the Columbia Irrigation District Canal that it parallels.

The Dell Haven Irrigation District was sold through court-ordered auction to the Northwestern Improvement Company.

1904

The deed of transfer from the Northwestern Irrigation Company to the Northern Pacific Irrigation Company was completed.



ABOVE: Building the dam at the head of Kennewick Canal (Horn Rapids Dam), September 1908.

RIGHT: Raising the trestle at Badger Canyon, June 18, 1909.

1905

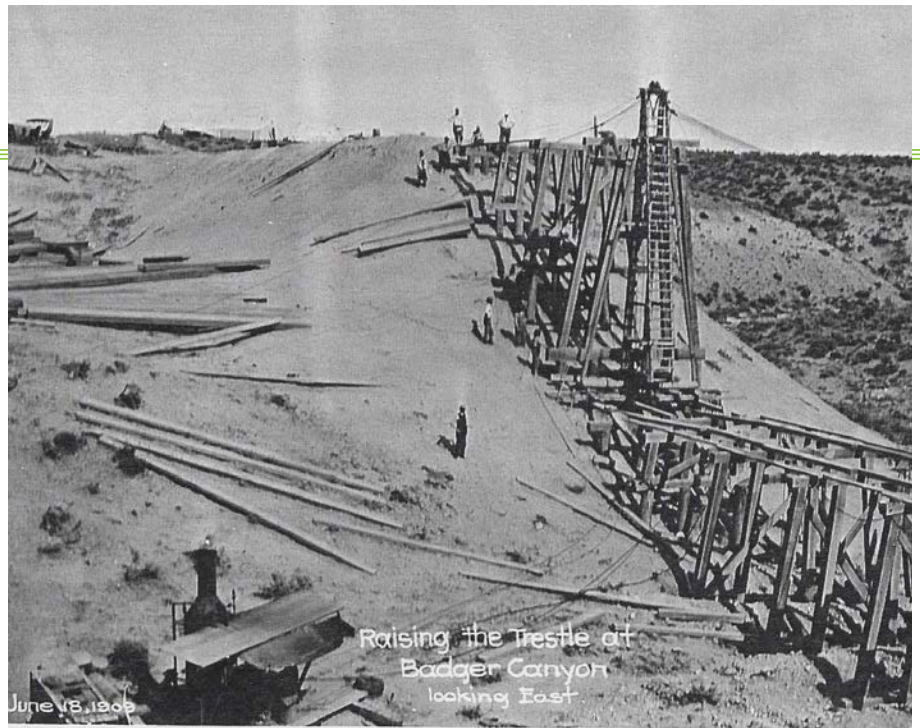
The Northern Pacific Irrigation Company rehabilitated the Kennewick Canal.

1906

The Highland Water Users Association was formed. It constructed a pumping plant at the north end of Edison Street during 1908 and 1909 to serve the Kennewick Highlands. This was the first time Kennewick property received irrigation water.

1909

The Low Lift Canal was completed and placed into service, serving lands north of 4th Street to the Kennewick Canal.



1910

The High Lift Canal was completed, serving land between the Low Lift Canal to the north and 10th and 14th Streets to the south.

1914

The Northern Pacific Irrigation Company deeded over the irrigation system, which included the pumping plant, pipelines, canals, and all appurtenances, to the Highland Water Users Association.

1917

The Kennewick Irrigation District (KID) was officially organized.



1918

The Columbia Irrigation District (CID) was officially organized. The Northern Pacific Irrigation Company deeded Horn Rapids Dam, water rights, canals, and all appurtenances to the CID.



1919

1930

1948

KID attempted to construct the New Lands Project for the first time; however, funding failed to pass Congress.

Due to financial trouble, the Highland Water Users Association was unable to continue the irrigation system and dissolved. KID took over the entire system. In the same year, a contract between KID and the Bureau of Reclamation transferred the Prosser Dam, KID water rights, and Chandler Power Canal right-of-way to Reclamation for the rehabilitation of the Kennewick Highlands irrigation system.

A second attempt to appropriate funds to construct the New Lands Project passed Congress, which appropriated funds for the construction of facilities to irrigate an additional 14,534 acres.

1957 1958

The Kennewick New Lands Main Canal and Lateral System delivers water for the first time.

The Kennewick Irrigation District Main Canal and associated laterals were given to KID for operation and maintenance. Under the contract with Reclamation, the district will operate, maintain, and hold responsibility for construction on the canal system until the year 2025.



TODAY

KID encompasses 20,201 irrigable acres, and it is composed of more than 70 miles of open canals and laterals along with more than 300 miles of buried pipelines. The district services a host of varied pumps, weed screens, canal crossings, and associated facilities, all designed for the delivery of irrigation water.

Our irrigation season normally runs from April 1 to October 15, or approximately 198 irrigating days. During the course of the irrigation season, the district delivers 85,000–90,00 acre-feet of water to the irrigable lands in the district. This represents almost three times the capacity of Bumping Lake, a popular camping and summer

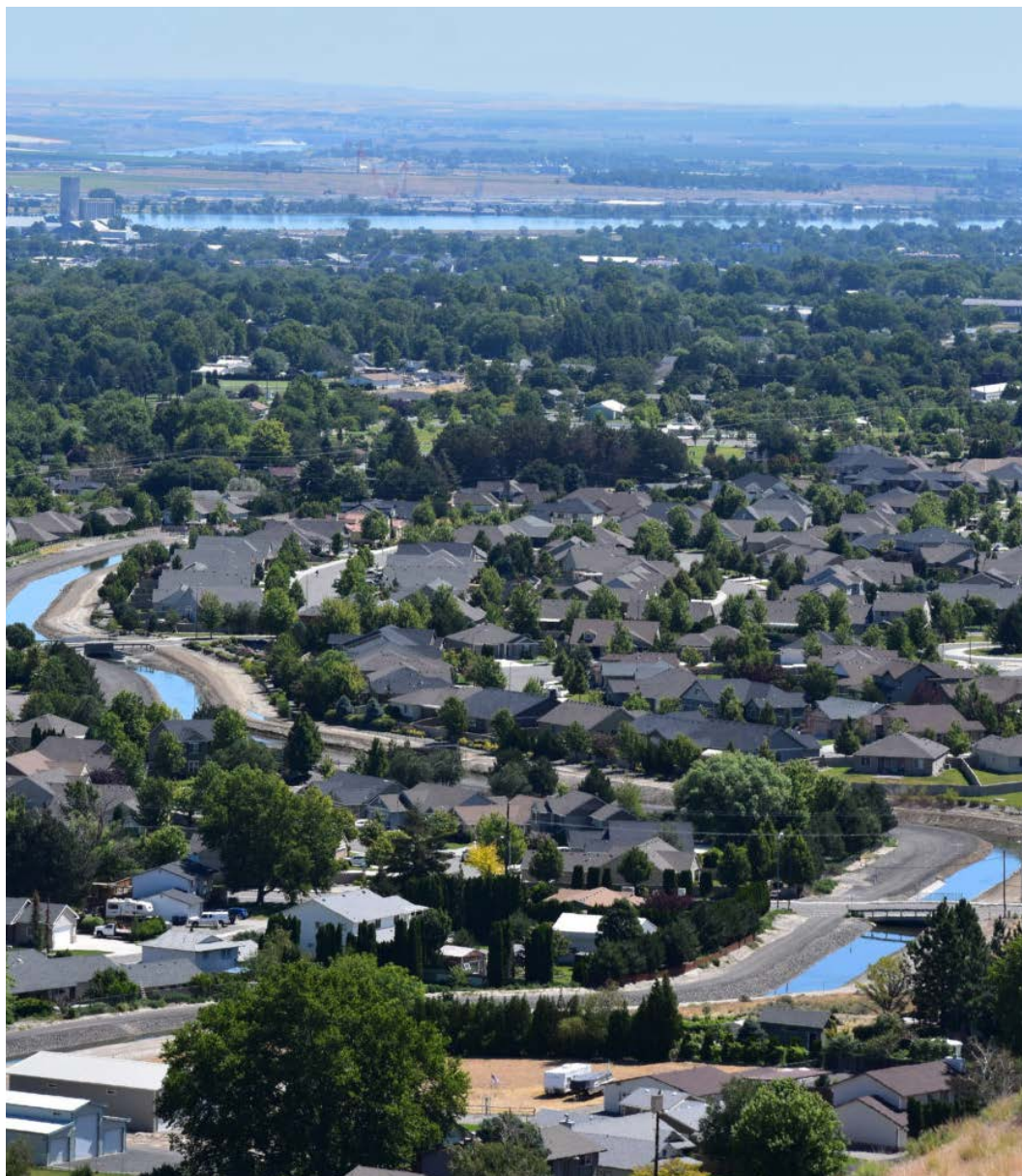
recreation reservoir near Mt. Rainier. Each property is entitled to a water allocation equivalent to 42 inches of water, which is the annual rainfall in Seattle.

KID diverts water out of the Yakima River at Prosser Dam located in Prosser, Washington. From that point, the canal runs on the north side of the Yakima River to the midway point between Prosser and Benton City, where it crosses underneath the Yakima River in a 99-inch pipe to the south side of the river. It then flows through Badger Canyon, South Kennewick, and South Finley to a point known as Hover. At Hover, directly across the river from the Boise Cascade Plant, the spill then runs into the Columbia River. ■



ABOVE: The first water delivery ceremony for KID on April 26, 1957. Original caption in *Tri-City Herald*: *Climax of the Kennewick Highlands Project dedication this morning came when Don Cresswell climbed the delivery box to turn the water onto his farm unit that was first settled over a half century ago, and then given up when no irrigation water arrived.*

RIGHT: Present-day KID.



Making the Desert Bloom



Traveling across the shrub-steppe hills and agricultural plains of Eastern Washington, one cannot help but notice the vibrant urban forest that appears as one enters the Tri-Cities. A rarity in our arid region, this urban forest is made possible by irrigation, which in large areas of Kennewick and south Richland is the result of water diverted from the Yakima River and delivered by the Kennewick Irrigation District (KID).

Prior to the arrival of irrigation in the area, the dominant natural vegetation found in the Tri-Cities was shrub-steppe. In fact, the Tri-Cities is located in the heart of an ecoregion with an arid climate of 7–10 inches of precipitation per year, 140–200 frost-free days per year, cool winters with an average

January minimum temperature of 30 degrees Fahrenheit, and warm summers with an average July high temperature of 89 degrees Fahrenheit. Without supplemental irrigation water, the region is dominated by dryland vegetation, such as Wyoming sagebrush, rabbit brush, Sandberg wheatgrass, needle-and-thread grass, and Indian rice grass.

Besides scattered groves of western juniper in the uplands and black cottonwood along the rivers, the Tri-Cities area is nearly devoid of native trees. The Lewis and Clark Expedition in the early 19th century took note of the lack of trees. Bateman Island, located at the confluence of the Yakima and Columbia Rivers, was the farthest point upstream on the Columbia River explored by Lewis and



and within the KID boundary, is the urban forest that is found in our community.

Contrary to the belief that urban areas are devoid of nature and wildlife, these areas provide habitat for species that can adapt to urban environments. The urban forest in the Tri-Cities provides a habitat for a variety of species, including porcupines, raccoons, Cooper's hawks, and robins.

The urban forest benefits the Tri-Cities and many other communities across the nation. Urban forests include all publicly and privately owned trees and vegetation in urban areas, and nationally constitute 25 percent of the total forest canopy.

The urban forest is a vital part of a community's green infrastructure and includes vegetation and porous elements for natural storm water management, such as lawns and landscaped areas. Trees in urban areas deliver a variety of ecosystem services: supporting soil formation, photosynthesis, and nutrient cycling; improving air quality by storing and sequestering carbon; and removing air pollutants, including greenhouse gases and particulates.

Urban trees improve water quality by reducing and treating storm water runoff, including the prevention of millions of gallons of runoff per year; the water is intercepted by the foliage or absorbed through the plants' roots. This is important in an arid environment, where much of the precipitation comes from sudden thunderstorms that produce large amounts of rain in a short period of time; this kind of precipitation can overwhelm storm drains and cause local flooding of streets.

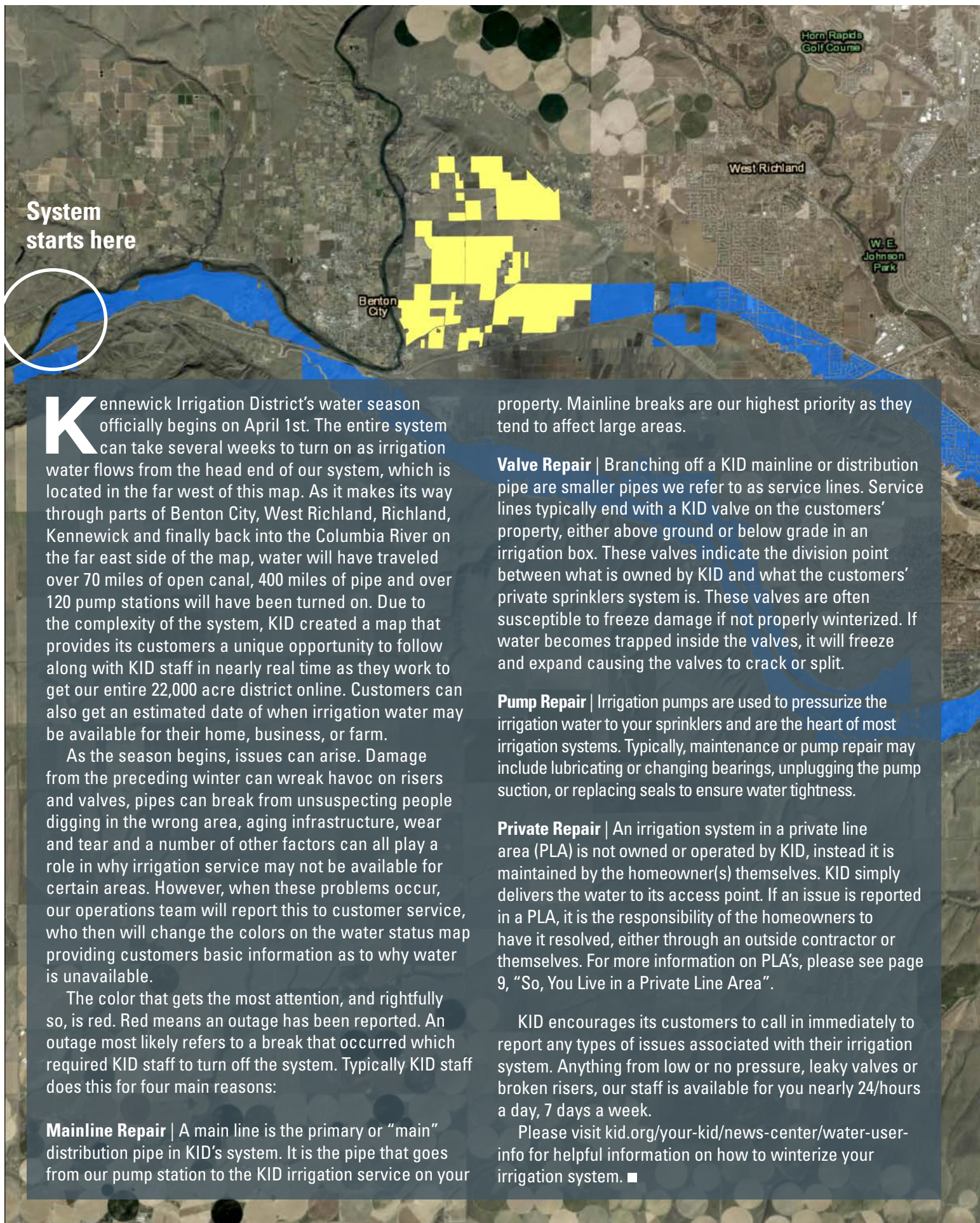
Shade from urban trees reduces energy use and associated costs, contributes to cooling surface air temperatures, and absorbs ultraviolet radiation; the cooling is crucial to making desert areas such as the Tri-Cities livable during the hot summer months.

Trees in urban areas provide significant economic, social, and cultural benefits to a community, including opportunities for outdoor recreation; the gathering of natural products, such as fruits and nuts; and aesthetic, spiritual, psychological, and public health benefits. Trees also reduce noise pollution from cars, highways, and other urban land uses. Urban forests can increase residential property values by up to 20 percent and spending by shoppers in central business districts by up to 12 percent, according to recent studies. Additionally, the urban forest can support a strong landscape maintenance industry by providing demand for lawn care specialists, arborists, and allied trades.

Benefits of urban forests are numerous, and residents must use water wisely, especially in arid regions and drought-prone areas. To ensure a thriving urban forest in arid ecoregions, it is important to choose drought-tolerant tree and shrub species to conserve water and to increase plant survival when water shortages occur. Local nurseries, soil conservation districts, university extension offices, and city park departments are good places to find information about proper plant selection for your local climate. ■

Clark. On October 17, 1805, William Clark wrote in his journal, "There is no timber of any Sort except Small willow bushes in sight in any direction" on Bateman Island.

The onset of irrigation was monumental for the region, as in many areas of the arid intermountain West. The economic and social benefits of the conversion of desert areas into irrigated croplands have been well documented over the years. The ecological changes brought by converting the natural landscape into irrigated farmland have also been widely noted. However, it is less well known that irrigation benefits natural resources in urban areas—the effect is just as dramatic on urban areas as on agricultural areas. One striking example in the Tri-Cities,



System starts here

Kennewick Irrigation District’s water season officially begins on April 1st. The entire system can take several weeks to turn on as irrigation water flows from the head end of our system, which is located in the far west of this map. As it makes its way through parts of Benton City, West Richland, Richland, Kennewick and finally back into the Columbia River on the far east side of the map, water will have traveled over 70 miles of open canal, 400 miles of pipe and over 120 pump stations will have been turned on. Due to the complexity of the system, KID created a map that provides its customers a unique opportunity to follow along with KID staff in nearly real time as they work to get our entire 22,000 acre district online. Customers can also get an estimated date of when irrigation water may be available for their home, business, or farm.

As the season begins, issues can arise. Damage from the preceding winter can wreak havoc on risers and valves, pipes can break from unsuspecting people digging in the wrong area, aging infrastructure, wear and tear and a number of other factors can all play a role in why irrigation service may not be available for certain areas. However, when these problems occur, our operations team will report this to customer service, who then will change the colors on the water status map providing customers basic information as to why water is unavailable.

The color that gets the most attention, and rightfully so, is red. Red means an outage has been reported. An outage most likely refers to a break that occurred which required KID staff to turn off the system. Typically KID staff does this for four main reasons:

Mainline Repair | A main line is the primary or “main” distribution pipe in KID’s system. It is the pipe that goes from our pump station to the KID irrigation service on your

property. Mainline breaks are our highest priority as they tend to affect large areas.

Valve Repair | Branching off a KID mainline or distribution pipe are smaller pipes we refer to as service lines. Service lines typically end with a KID valve on the customers’ property, either above ground or below grade in an irrigation box. These valves indicate the division point between what is owned by KID and what the customers’ private sprinklers system is. These valves are often susceptible to freeze damage if not properly winterized. If water becomes trapped inside the valves, it will freeze and expand causing the valves to crack or split.

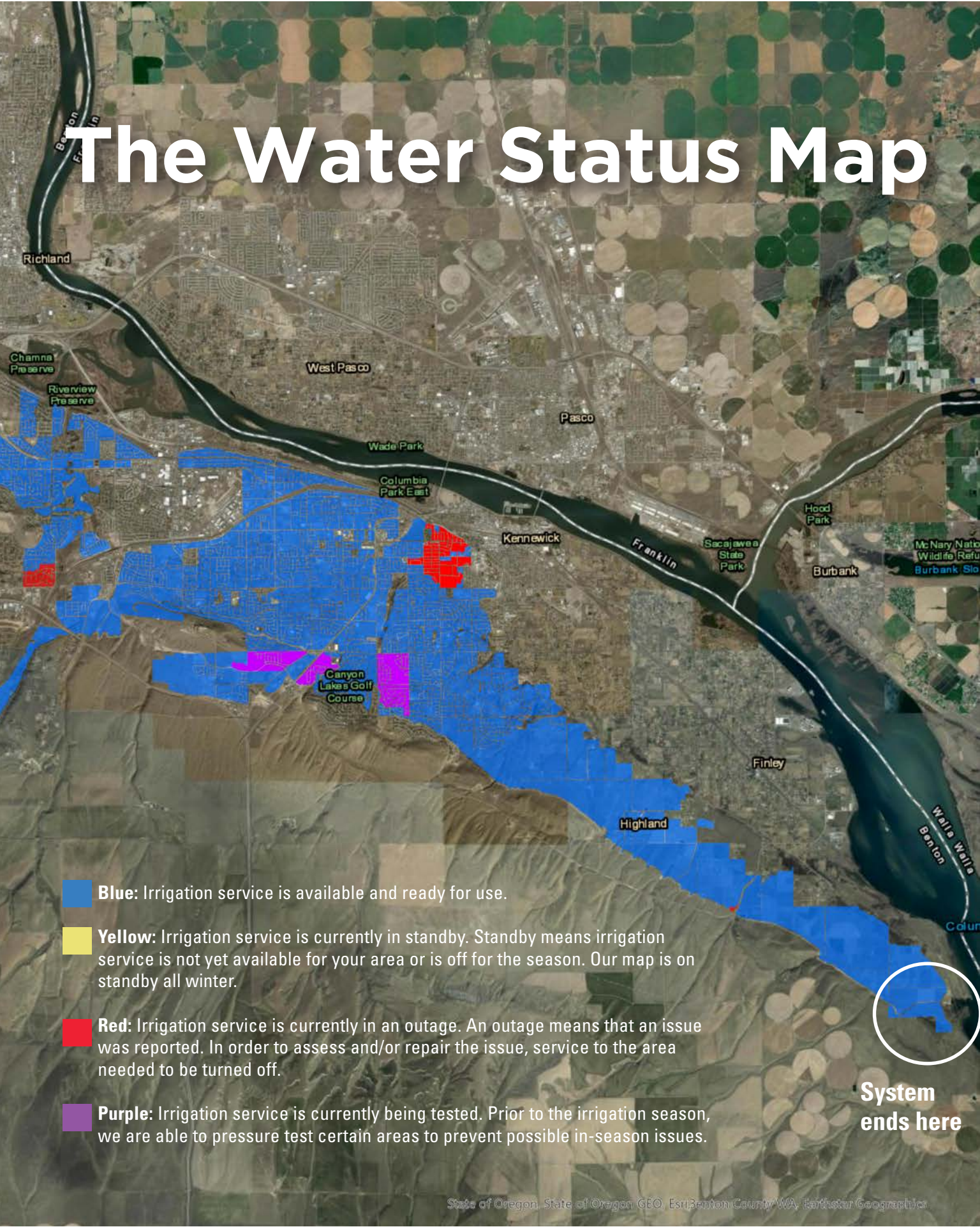
Pump Repair | Irrigation pumps are used to pressurize the irrigation water to your sprinklers and are the heart of most irrigation systems. Typically, maintenance or pump repair may include lubricating or changing bearings, unplugging the pump suction, or replacing seals to ensure water tightness.

Private Repair | An irrigation system in a private line area (PLA) is not owned or operated by KID, instead it is maintained by the homeowner(s) themselves. KID simply delivers the water to its access point. If an issue is reported in a PLA, it is the responsibility of the homeowners to have it resolved, either through an outside contractor or themselves. For more information on PLA’s, please see page 9, “So, You Live in a Private Line Area”.

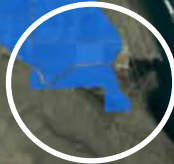
KID encourages its customers to call in immediately to report any types of issues associated with their irrigation system. Anything from low or no pressure, leaky valves or broken risers, our staff is available for you nearly 24/hours a day, 7 days a week.

Please visit kid.org/your-kid/news-center/water-user-info for helpful information on how to winterize your irrigation system. ■

The Water Status Map



- Blue:** Irrigation service is available and ready for use.
- Yellow:** Irrigation service is currently in standby. Standby means irrigation service is not yet available for your area or is off for the season. Our map is on standby all winter.
- Red:** Irrigation service is currently in an outage. An outage means that an issue was reported. In order to assess and/or repair the issue, service to the area needed to be turned off.
- Purple:** Irrigation service is currently being tested. Prior to the irrigation season, we are able to pressure test certain areas to prevent possible in-season issues.



System ends here

State of Oregon, State of Oregon GEO, Esri/Benton County WA, Earthstar Geographics

Life at the End of the Project



Supplying irrigation water to more than 60,000 urban and agricultural customers at the end of the Yakima Project in a highly regulated and drought-prone river system is a challenge that the Kennewick Irrigation District (KID) faces year in and year out.

The Kennewick Division was the last Bureau of Reclamation Yakima Project division to be completed. Authorized by Congress in 1948, construction of the division was completed in 1958, when KID took over operation of the irrigation delivery component of the division. The Yakima River is an overappropriated basin; in dry years, supply is not adequate to meet demand. The Yakima Project's five completed storage reservoirs can hold just over 1 million acre-feet of water, or 30 percent of the average total natural

runoff in the basin. Total irrigation entitlements and instream flow needs in the basin above Parker Dam are approximately 3 million acre-feet. The difference is made up in snowpack. Known as the sixth reservoir, snowpack supplies basin water needs into late spring and early summer before demands require that the reservoirs be tapped.

Water shortages have been a periodic occurrence in the Yakima basin since the creation of the Yakima Project, which was authorized by Congress on December 12, 1905. To develop the five storage reservoirs that would serve the project, the state of Washington granted the United States the right to use eminent domain to acquire land, water, and property; this action directly led to the withdrawal of the unappropriated waters of the Yakima basin. These

withdrawn waters hold a priority date of May 10, 1905, and are subject to prorationing in water-short years. In those years, water users with senior water rights (prior to May 10, 1905) will receive 100 percent of their entitlement. Water users with proratable water rights (post May 10, 1905) will receive reduced proportions of their usual entitlement, depending on the amount of water available after senior entitlements are fulfilled. KID holds a small amount of senior water rights; however, the majority of KID's entitlement (84 percent) is proratable.

Water shortages have caused the curtailment of prorated water rights on average once every 4 years over the past 20 years. Early disputes over water shortages in the basin led to the District Court of Eastern Washington issuing the 1945 Consent Decree, which determined water delivery entitlements in the Yakima basin above Parker gage and defined the prioritization of water rights for drought years, including prorationing. The consent decree applied a unit of measurement known as total water supply available (TWSA). TWSA is the total amount of water expected to be available for all uses in the basin above the Parker gage from April 1 to September 30 of any given year. The amount of water that makes up TWSA includes reservoir storage contents, usable return flows above Parker gage, and runoff forecasts.

Outside TWSA, water supply for KID is, and was intended to be, made up of return flows in the lower Yakima River. The 1945 Consent Decree illustrated that the existing system was not adequate to meet all needs in water-short years and that prorationing would occur in those situations. Despite being an irrigation district with mostly proratable water rights, KID has typically fared better overall than other Yakima Project irrigation districts that hold water rights that are entirely proratable. This is why the return flows that supply KID are important to water supplies in the entire Yakima basin.

KID's position in the lower Yakima River below Parker gage positions is to take advantage of return flows that enter the river above the district's diversion at Prosser Dam. Even with inadequate storage within the basin and the 1945 Consent Decree in place, Reclamation recognized that sufficient return flows were available in the lower Yakima River to supply KID. Four major Yakima Project irrigation entities divert water above Parker gage and provide irrigation return flows to the lower river: Roza Irrigation District, Kittitas Reclamation District, Wapato Irrigation Project, and Sunnyside Valley Irrigation District. Water entering the river below Parker gage is outside the TWSA definition but is crucial for providing water supplies for KID and for providing flows for fish. Reclamation manages the Parker gage to pass flows required to meet federal instream flow targets at the gage, as well as identical flow targets located downstream at Prosser Dam. KID depends on the water that returns to the river between the two points for the district's supply, especially in water-short years.

KID's water supply contract with Reclamation allows it to take all waters above flow targets at Prosser Dam, provided that the district does not call on storage for targeted delivery. During periods of prorationing, this has a huge effect on KID and other water users in the basin. First, by taking return flows as a supply, KID is able to take more water than the prorated amount during water-short years (although these increased amounts tend to not be available when needed during the hot days of midsummer). Second, other proratable districts benefit from KID not taking water out of TWSA during water-short years; KID calling on storage during a drought would require a recalculation of TWSA and would result in a reduction in the prorated amount of water delivered.

Although return flow supplies have been a good deal for KID water users and other proratable water users in the Yakima River basin, the amount and timing of the return flows that have sustained KID for nearly 60 years have changed. Concerns about declining salmon and steelhead populations and greatly reduced instream flows led to landmark legislation passed by Congress in 1994. The legislation, title XII, authorizes an aggressive, federally funded water conservation program designed to increase instream flows in the Yakima River and to provide security to participating irrigation districts during drought conditions. Title XII has been successful in modernizing irrigation canal infrastructure and providing water for biologically beneficial flows.

Although the title XII conservation program has certainly been beneficial to both program participants and instream flows, it has directly reduced the amount of return flows that are available for diversion in the Yakima River. Fortunately, KID and others anticipated this, and as a result, a special section was added to the title XII legislation: Chandler Electrification. Chandler Electrification authorizes the installation of electric pumps to replace the hydro pumps that supply KID's irrigation water. These pumps are used during drought conditions when limited flows are available to drive the hydro pumps, which require 1.25 buckets of water for every bucket pumped into the head of the KID main canal. KID is actively pursuing the installation of electric pumps at Chandler. Recent modeling completed by Reclamation shows that upbasin water conservation projects will continue to reduce the return flows that supply KID, yet a switch to electric pumps in water-short years could provide KID with an adequate water supply in all but the worst years. Additional modeling is in progress to consider varying climate change scenarios and the potential effect on KID's water supply.

Life at the end of the ditch has not always been easy, especially in recent years. Upstream conservation projects have reduced water supplies, and droughts have exacerbated swings in river levels that, at times, made meeting irrigation demands an impossible task. The KID board and staff are dedicated to making the right decisions that will allow KID to flourish for the next 100 years and beyond. ■

The Integrated Plan: Yakima River Basin Water Enhancement Program



The Yakima Basin Integrated Water Resource Management Plan is a comprehensive plan to address water supply and fishery problems in the Yakima River watershed. Participants in the process include federal and state agencies, the Yakama Nation, irrigation districts, cities, counties, and environmental advocacy groups. The Integrated Plan consists of seven elements: fish passage, fish habitat enhancement, existing structures and operations modification, surface storage, market-based reallocation, groundwater storage, and enhanced water conservation. When complete, the multibillion-dollar project will improve stream and habitat conditions for salmon and other fish and wildlife species and provide farmers and communities in the basin with greater water supply reliability. The Integrated Plan is intended to be implemented over a 30-year period. A landmark year for the Integrated Plan was 2019, when Congress passed the John D. Dingell, Jr. Conservation, Management, and Recreation Act, which authorized a number of early action projects in the plan.

The Kennewick Irrigation District (KID) continues to work closely with the Bureau of Reclamation to perform detailed modeling of the lower Yakima River so that the effects of Integrated Plan actions (including water conservation) on KID water supplies can be evaluated. Preliminary modeling results suggest that KID's water supply will be harmed by upstream water conservation projects, both under the Integrated Plan and under other federal programs, such as the Yakima River Basin Water

Enhancement Program. Results of the modeling will guide decisionmakers in the protection of KID's water supply.

KID also is a key stakeholder in a group known as the Lower River Leadership Group, made up of KID, Reclamation, the Yakama Nation, and the Washington Department of Ecology. The purpose of this group is to lead the way on finding and implementing solutions to lower Yakima River issues that need a focused effort and cannot be resolved through the Integrated Plan, including improving fish habitat conditions and water supply enhancements. The group is currently in the process of formulating an action plan to improve habitat conditions and water supplies in the lower Yakima River, which will include specific projects to be carried out in the coming years, including the following:

- Exploring on-district storage options and recapturing return flows to bolster district water supplies during droughts
- Assessing opportunities to enhance cold water refugia for fish in the lower river through aquifer recharge
- Adding more water quality monitoring stations in the lower river
- Supporting the breach of the causeway at Bateman Island to improve flows and temperature conditions for fish in the Yakima River delta

KID strongly supports these projects and greatly appreciates its relationships with the Yakama Nation, Ecology, Reclamation, and other stakeholders. ■

Investing in Kennewick's Future: The Capital Improvement Program



Kennewick Irrigation District's (KID) board of directors has been investing in the district's future for decades. During the 1960s and 1970s, the district worked with the Bureau of Reclamation to rebuild the main canal following a string of canal failures. One canal failure caused the derailment of an Amtrak passenger train in Badger Canyon. In the 1980s, the district piped some of its smaller lateral ditches for public safety purposes after a child fell into a small ditch and drowned.

Over the last decade, KID's capital improvement program evolved with the establishment of the capital improvement surcharge, which charges each account a flat rate that generates approximately \$1.6 million annually. These dollars are used as the local match to leverage funds received from our successful grant applications to Reclamation's WaterSMART program. In 2010, the board of directors set public safety as its number 1 goal, and KID has focused on lining its earthen canals for public safety for the densely urbanized district. KID received these grant funds for water conservation and savings but chose to line canals to increase safety. Throughout this

process, KID is making the canals stronger, safer, and less prone to breaches.

Since 2007, KID has spent approximately \$12 million and has been awarded \$7.5 million in grant funds to line over 20 miles of earthen canals. Over the next 6 years, KID will line the remaining canal sections with high-density polyethylene.

In addition to canal lining, the board of directors challenged KID employees to develop and execute a plan to address its aging pipeline network. KID has over 300 miles of buried pipe throughout Kennewick, south Richland, West Richland, and unincorporated Benton County. KID employees met the challenge and are replacing old pipelines that have a history of causing serious property damage. KID has funded this program without drawing on the existing capital program funding or raising rates for its customers. KID recently purchased 335 acres of land in the Badger Canyon area as a potential site for a 12,000 acre-foot reservoir. This reservoir will be filled during low demand times and used in water-short years. This project is currently in the feasibility stage, but look for further information on our website. ■

What Is Title Transfer?





Ever since the modern Kennewick Irrigation District (KID) went online with deliveries beginning in 1957, most of the irrigation facilities (canals, laterals, and Amon pump station) have been owned by the federal government, specifically the Bureau of Reclamation. Because constructing the system was a large and expensive endeavor for its time (costing almost \$5 million), and the system was needed due in part to the removal of local irrigated farmlands from production to make way for the federal Hanford project, federal involvement was sought by the local community and was finally authorized by Congress in 1948.

This partnership with the federal government was necessary to construct the infrastructure needed to bring irrigation water from Prosser to Hover, irrigating farms and residential neighborhoods along the way. However, as areas of Benton County, including parts of West Richland, South Richland, and Kennewick, have grown over the years, it has become apparent that federal oversight of the community irrigation infrastructure has not always been advantageous. Development pressures have required easements to be moved or abandoned in some cases, and it is not an easy or quick process for the federal government to process these requests. There are requests made over 10 years ago for unused easements to be abandoned that are still awaiting federal approval. Staffing and funding issues in the federal government over the years, in addition to antiquated facility management techniques, have compounded the problem.

The good news is that there is a solution in the works. Title transfer is the process of transferring ownership of federally owned irrigation facilities over to the local communities that they serve. The process, as expected, can be long

and arduous, but legislation passed by Congress and signed into law in 2019 has greatly streamlined the requirements for relatively simple transfers. KID is a beneficiary of this new legislation and is actively working to receive ownership of the transferred works, or that portion of the system that KID has already operated and maintained from the beginning. This is the system of canals and laterals from the head gate of the Main Canal all the way to the system terminus at the Hover wasteway.

The benefits of title transfer to the community are substantial. KID has the staff and capacity to process landowner requests in a timely fashion. The district has staff dedicated to conducting the environmental reviews required under state law. Title transfer will give the district the flexibility needed to engage the broader community on the best use of our infrastructure, including the potential for linear parks and walking paths. Also notable is that the cost to the district for title transfer has been minimal; the district has already collected enough funds to repay our portion of the construction costs, and nothing more is owed to make the federal government whole. Funds have been spent by the district on cultural and environmental studies and related mitigation to ensure no harm to the environment or cultural resources will occur.

The district is nearing the end of a process that has taken over 4 years to complete thus far. The district would like to extend special thanks to Representative Dan Newhouse for his support of this effort, and to the Confederated Tribes of the Umatilla Indian Reservation and the Yakama Nation for their willingness to work with us to make this project a success. The district also would like to thank Reclamation for its commitment to the project. Without these partnerships, title transfer would not be possible. ■

THE NEXT 100 YEARS



Predecessors of the modern Kennewick Irrigation District (KID) existed under different names dating back to the late 1800s and made major contributions to the city of Kennewick's creation, writes Dorothy Zeisler-Vralsted in her dissertation, *History of the Kennewick Irrigation District, State of Washington, 1880 to 1987*.

Today, KID is part of the Kennewick Division of the Yakima Project of the Bureau of Reclamation. The importance of our predecessors' efforts to create the framework for the modern KID cannot be underestimated. Confident promoters of bringing irrigation water to Kennewick organized KID in 1917 but would have to wait until 1948 for congressional authorization of the Kennewick Division, with the irrigation system coming online 9 years later when the new Chandler Hydraulic Pumps delivered project water into the main canal for the first time in 1957. It will take the same visionary approach today to ensure that KID is still prospering 100 years from now.

The district's priority over the next 100 years will be water supply. With adverse effects of climate change looming, KID will take advantage of new technologies to help manage its allocation in times of plenty and in times of drought. The biggest challenge will be securing new water rights to meet new irrigation demands in areas surrounding the district that are prime targets for agricultural expansion.

With its ample, drought-resistant flows, the nearby Columbia River is the obvious water source, but it comes at a high cost, estimated at over \$100 million today for a new pump station and related infrastructure. These costs will continue to rise. However, there are opportunities in the Tri-Cities region for partnerships that would benefit

all local water users. Opportunities for cooperation, coordination, or consolidation with other water users would radically change how water is managed and delivered to customers in the Tri-Cities.

On the south bank of the Columbia River, there are three irrigation districts serving the Tri-Cities area of Benton County: the Badger Mountain Irrigation District (BMID), the Columbia Irrigation District (CID) and KID. If these three agencies work together, great things would materialize for our region. BMID has an existing Columbia River water right and pumping facility, and CID's main canal is approximately 75 feet away from the BMID pumping plant. KID receives up to 6 cubic feet per second per day of its water carried by CID under an agreement from the early 1920s. CID is the last major Yakima River water user, diverting at the Wanawish Dam, located 18 miles upstream from the confluence with the Columbia River.

A large expense for KID is the pumping of water from the Columbia River to higher elevation areas in the district; however, if BMID pumps new water for KID and discharges it into CID's main canal, KID could pick it up a few miles down canal to serve lower elevation customers. This could reduce the lift required compared to a direct pump from the Columbia River, and higher elevations could continue to be served with Yakima River water. The challenge is to bring together these three districts, which have a long history of working together on smaller projects. These districts must focus their efforts on the next big water project to allow for irrigated agriculture and a vibrant urban landscape far into a new century while creating drought resiliency that will allow KID to continue to make the desert bloom. ■





**Kennewick
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