





## Director's Message

As we close out 2022 and I look back at all the great work we accomplished as a department, I am very proud to be a part of this organization. I'd like to take a moment to thank all of our staff who are so passionate about our mission to protect our community and our environment. But we can't do it alone. Our partnerships with City departments and nonprofits are invaluable and key to the high quality of our work. We always look forward to collaborating with others to contribute to citywide initiatives whether that be increasing our resilience, improving mobility or managing the homelessness crisis.

Our department has grown over the last few years to prepare for the challenges ahead and the impacts of climate change on our waterways and environment. In 2022, we invested in our equity team, emergency and fleet management, scientists, and field crews.

Watershed Protection continues to lead with equity and that starts by having honest conversations both internally and with our community. We need to make sure we are using effective strategies to address the mistakes of the past. Many of our employees have enthusiastically jumped into our long-term planning effort, Rain to River. They have been engaging with our community and listening so we can be our best selves. Others have been working with the Austin City Council to update the Land Development Code and the City's criteria to manage stormwater infrastructure.

This report helps to highlight these efforts and more. It is my honor to serve as Watershed Protection's director, and I look forward to another great year in 2023!

Jorge L. Morales, P.E., CFM, Director

Watershed Protection Department





# WHAT DOES A KEY PERFORMANCE INDICATOR MEAN?

Key Performance Indicators best describe the department's primary functions and are used by the City to assess the performance and success of the department. They are indicated by this icon.

#### City Manager's Message

I am excited to congratulate and say thank you to all the employees in the Watershed Protection Department. This committed team has been instrumental in helping the City of Austin continue our efforts in building a resilient, innovative, sustainable, and equitable city for all.

In 2022, collectively the City of Austin made great strides in key areas such as public health, homelessness, preparedness, resilience, and mobility. Our Watershed Protection employees contributed to many of these efforts, and I am humbled to work alongside this amazing team. Some of the key milestones that were accomplished include incorporating water quality infrastructure into the Q2 Stadium and the Anderson Mill Road Regional Mobility improvements as well as remapping our floodplains to reflect increased rainfall rates. And I cannot go without recognizing the daily work this team provides maintaining our drainage system and ensuring it works as intended.

Each year, our organization takes additional steps to improve our preparedness and response to climate threats such as storms, flooding, erosion, and drought. Though extreme weather events continue to impact our community, the hard work and dedication shown by our Watershed Protection staff helps preserve our precious ecosystems and contributes to our community's environmental resilience.

I look forward to what 2023 has in store for this department and its employees as they all work together with our community making Austin a place we all want to live, work, and play.

Spencer Cronk, Austin City Manager



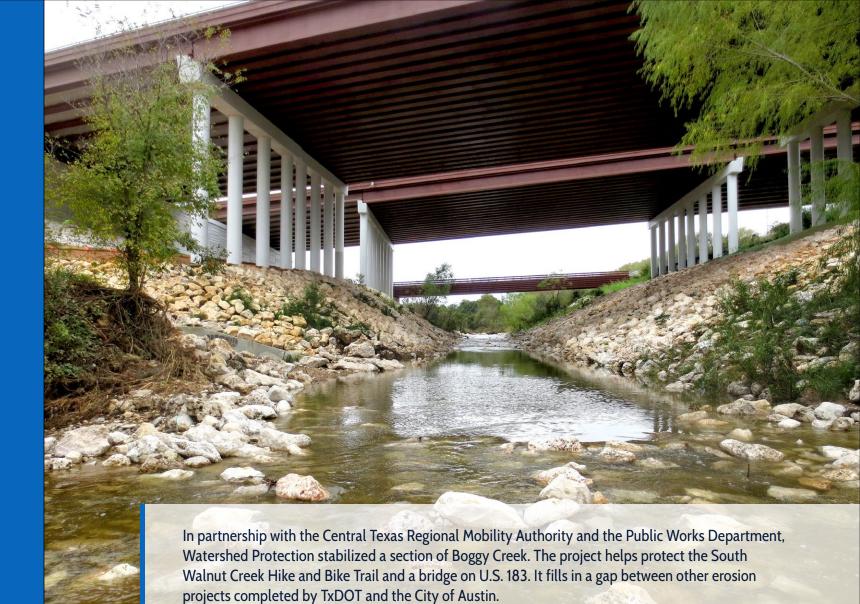
Watershed Protection completed Phase 1 drainage improvements for the Martin Luther King Jr. Transit Oriented Development. The improvements will help with localized flooding. Transit Oriented Developments are part of the Imagine Austin Comprehensive Plan to create compact and connected communities.



Watershed Protection installed rain gardens as part of the Anderson Mill Road Regional Mobility Improvements to improve water quality in Lake and Bull Creeks. Part of the 2016 Mobility Bond Program, this project was designed to reduce congestion and enhance safety for all road users, including people riding bikes, walking, driving cars, and accessing transit in the area.



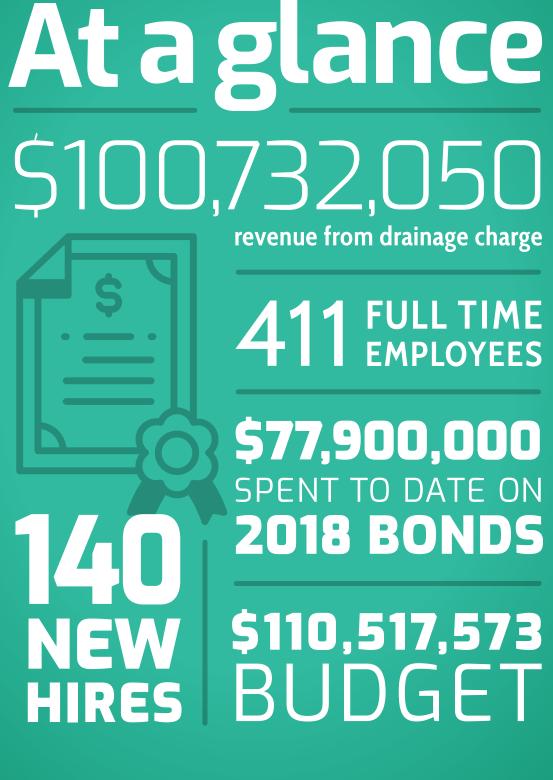
Get Ready, Central Texas! Watershed Protection staff participated in the City's first Emergency Preparedness Fair. Hosted by Homeland Security and Emergency Management, the event was part of the City's efforts to be more resilient during a natural disaster.

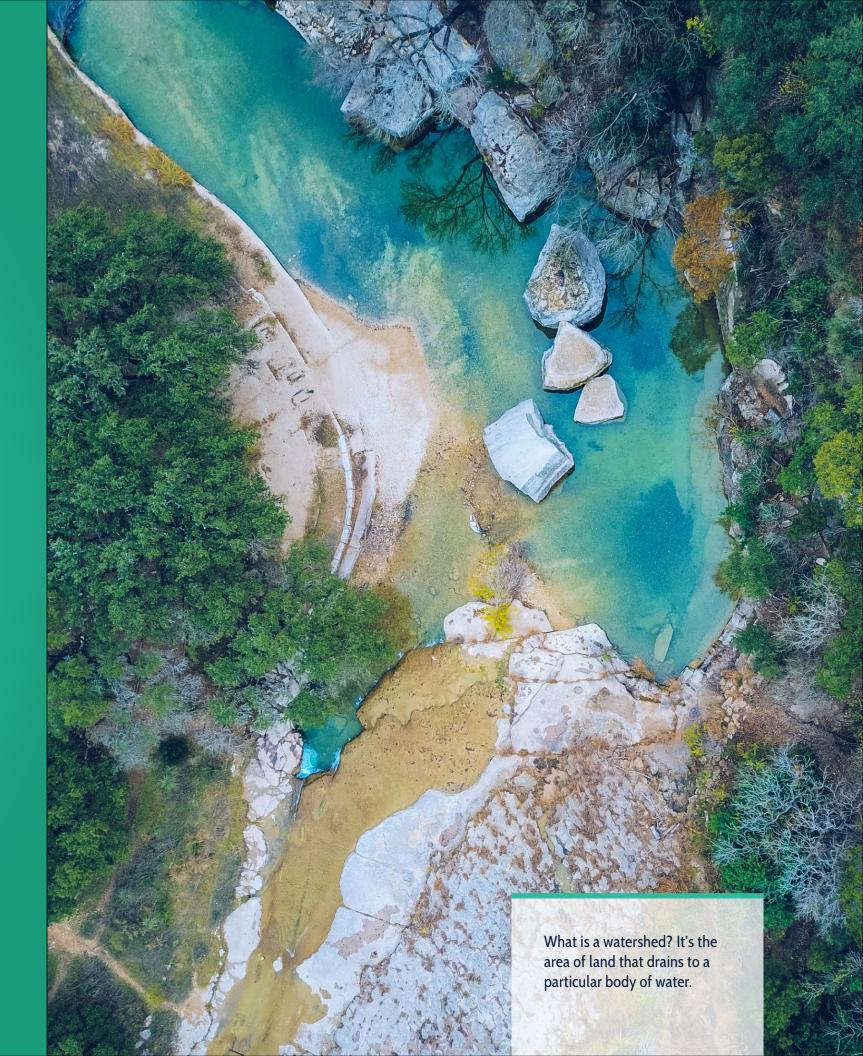


Watershed Protection partnered with Austin Water, Public Works, and Parks and Recreation for the emergency repair of a 9-foot by 6-foot box culvert. Sealants on the culvert had failed, resulting in a sinkhole. Through this effort, the City was able to upgrade the storm drain as well as water and wastewater pipes. Additionally, staff was able to integrate Great Streets improvements such sidewalks and ADA ramps throughout the project area.



# Ataglance





#### MISSION STATEMENT

Watershed Protection protects lives, property and the environment of our community by reducing the impact of flood, erosion & water pollution.

# Operations & Maintenance Budgeted Funding



- 1. PROJECT DESIGN & DELIVERY \$6,849,994 (12.31%)
- 2. PLANNING, MONITORING & COMPLIANCE \$12,146,663 (21.82%)
- 3. SUPPORT SERVICES \$12,881,828 (23.14%)
- **4. FIELD OPERATIONS** \$23,785,495 (42.73)

Most of the department's funding comes from the drainage charge, assessed on utility bills. The department also receives funding from bonds approved by voters in 2018.

#### **Expenditures Using 2018 Bonds**

In 2018, Austin voters approved \$184 million in bonds for drainage improvements and open space purchases. Almost \$78 million has been spent mostly on land acquisition for open space and flood safety.



CATEGORY	TOTAL EXPENSES TO DATE
Land Acquisition*	\$65,936,345
Drainage**	\$10,460,068
Erosion Control	\$440,742
Flood Control	\$1,245,966
Total	\$77,913,986



Left: 2018 Bond funding was used for construction of the Meredith St. Flood Risk Reduction project.
The project will help prevent localized flooding.

Commercial Drainage Fee  Residential Drainage Fee  Development Fees  Interest  Legal Settlements  Property Sales	\$67,003,068 \$32,194,266 \$1,292,379 \$1,225,219
Development Fees Interest Legal Settlements	\$1,292,379
Interest Legal Settlements	
Legal Settlements	\$1.225.219
	T .,,
Property Sales	\$982,958
- T	\$307,663
Public Health Licenses, Permits, Inspections	\$102,740
Building Safety	\$19,030
Building Rental/Lease	\$8,349
General Government Charges	\$6,440
Other Revenue	\$355
Total	\$103,142,466

<sup>\*</sup>Includes both open space purchases and buyouts for flood safety or other Capital Improvement Projects. \*\*Refers to the category of projects that improve stormwater conveyance and constructs or repairs related infrastructure.

# Safety

\$38,365,456 SAFETY BUDGET



# 18,614 FT.

storm drain pipe installed/replaced

BUILDINGS, **PROPERTIES** & ROADWAYS WITH REDUCED **FLOOD RISK** 

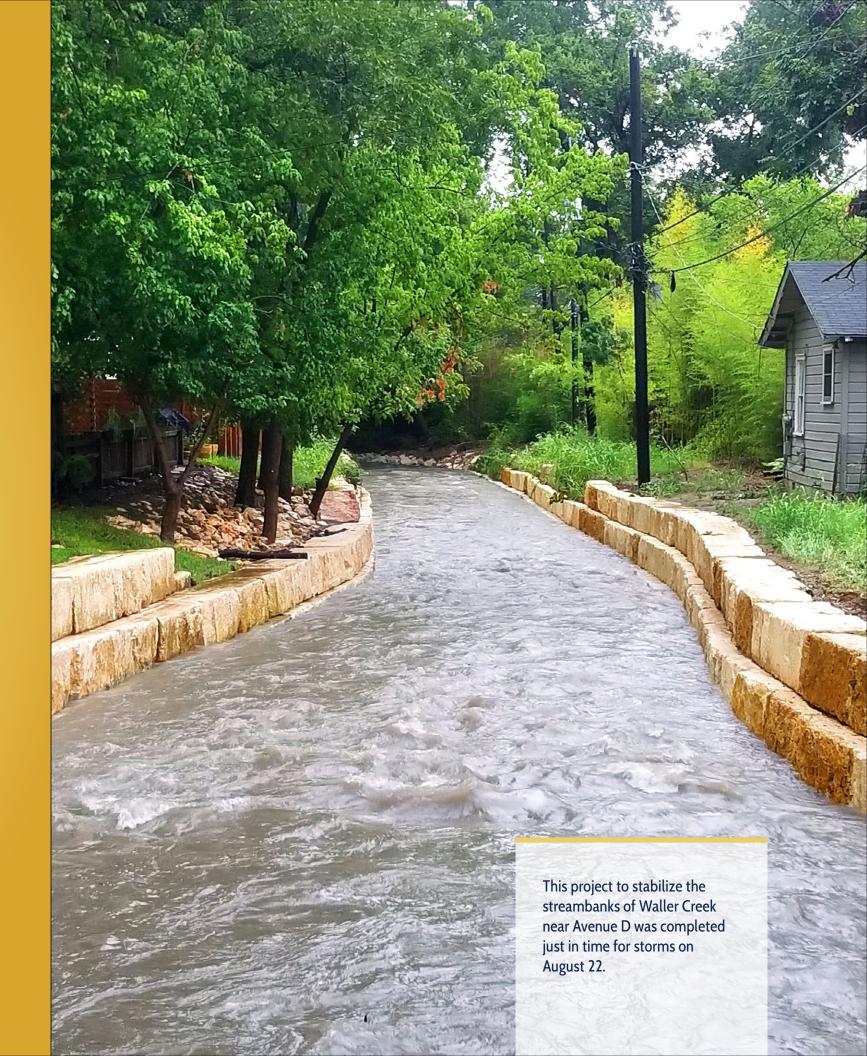
# MILES

of creeks, channels and ditches cleared



.84 miles of eroding stream channels restored & stabilized





#### **STRATEGIC DIRECTION 2023**

# Being safe in our home, at work and in our community

## Work begins on unprecedented erosion project.

Construction began on Austin's largest streambank stabilization project ever in Roy G. Guerrero Colorado River Metropolitan Park. Erosion along this partially constructed, man-made channel is far worse than what is seen in natural creek systems and finding a solution has been complicated and challenging. The project will include replacing the pedestrian bridge destroyed by the erosion. Public focus has been on the bridge, but the erosion poses even more public safety and mobility issues. Left unchecked, it would eventually move outside of the

park and threaten multi-family housing, Wickersham Lane and Riverside Drive.

#### It never rains, but it pours.

The past year was mostly a dry one, but on August 22, Austin broke its one-hour record for rainfall. After 51 days with no measurable rainfall, Austin received 2.96 inches of rain in one hour at Camp Mabry. Any time significant rainfall is expected, the department moves into high gear. Staff prepare days before the storm and monitor and respond to conditions during the storm. Once it has passed through, damage assessments and debris removal begin.

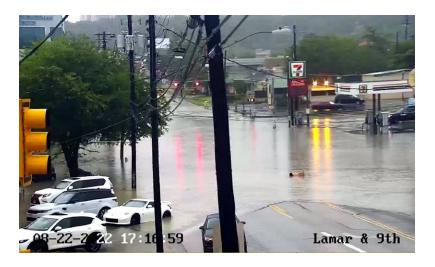


Broken reclaimed water pipe at Roy G. Guerrero Colorado River Metropolitan Park. Repairing and protecting damaged Austin Water infrastructure has been one of five temporary projects completed before the Capital Improvement Project was finalized.



Traffic camera at 9th and Lamar. As is typical in a storm, the amount of rainfall and its intensity varied throughout the City. Shoal Creek was one of the hardest hit with the highest flows since 2015. Lamar flooded at multiple locations and some streambank stabilization projects were damaged







Watershed Protection crews remove debris from a culvert ahead of storms on August 22. When heavy rain is in the forecast, crews visit low water crossings and other problem areas to remove any debris that may prevent the flow of water.

### Understanding our flood risk.

In 2022, Watershed Protection began a multi-year effort to update floodplain maps citywide. Austin's mapped floodplains are increasing in size due to higher rainfall rates documented by the National Oceanic and Atmospheric Administration. With almost 200,000 properties potentially impacted and more than 7,000 buildings likely to be in the newly mapped floodplains, this effort will touch many lives. Having accurate floodplain maps is important both for individual residents and the community. The maps and associated models are used to determine flood risk and educate the public about this risk, determine where and how new developments can be built, and prioritize and design flood risk reduction projects.



Trash in Lady Bird Lake is another issue from the storm. With the ongoing drought, trash has accumulated over time in our urban creeks. The storm washed it into the lake, where it has become tangled in vegetation. In August and September, the Clean Lady Bird Lake program removed more than six tons of trash from the lake.



# Health AND ENVIRONMENT

**2.8** Million

gallons of pollutants recovered from the environment by responding to spills & inspecting regulated businesses

**\$7,766,124** BUDGET

858 TONS

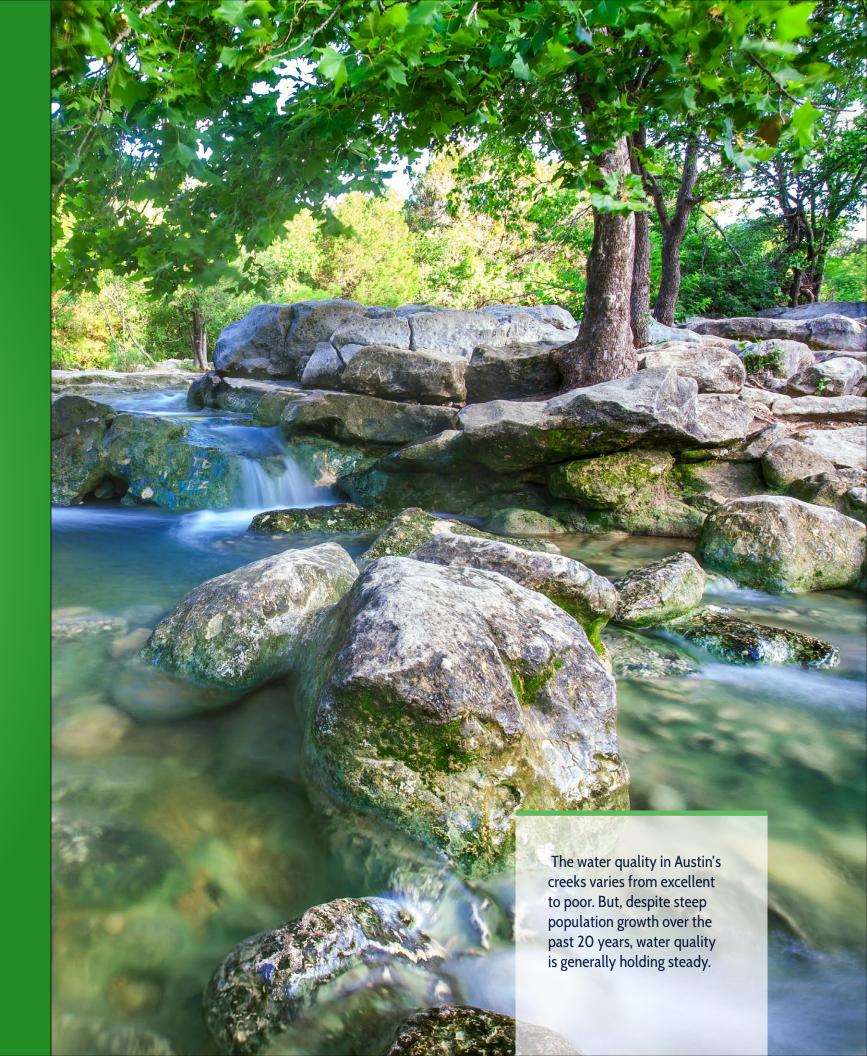
**OF POLLUTION** 

removed from stormwater by our Stormwater Treatment Facilities



932.72 TONS OF DEBRIS REMOVED FROM WALLER CREEK TUNNEL INLET FACILITY, PREVENTING IT FROM FLOWING INTO LADY BIRD LAKE

1,836,000
pounds of pet waste potentially kept out of streams & lakes



#### STRATEGIC DIRECTION 2023

# Enjoying a sustainable environment & a healthy life, physically & mentally

## Streams in Eastern Travis County are struggling

Watershed Protection published a study that was the first to assess the health of streams in Austin's eastern watersheds. The study team found that stream conditions in Eastern Travis County are significantly worse than those in urban, central Austin. This was a surprise. These streams flow through the Blackland Prairie, which has extremely fertile soils and minimal urban development.

Early settlers in the 1800s documented that there used to be forests all along these streams and the water ran clear. There appears to have been little to no erosion at that time. The intensive clearing of the forests during the 19th century removed the natural, stabilizing-effects of roots. Without the trees and vegetation, the streambanks weakened, became prone to erosion and degraded over time.

More recent development pressures in east Austin are exacerbating the erosion problems along these already suffering streams, affecting infrastructure and the environment. Although the City has protective regulations, they were originally developed based on central and west Austin's streams. They are not as effective for east Austin's uniquely sensitive streams. Management and protection of these streams must be informed by the unique environmental setting of the Blackland Prairie and its history.



Around 1849, J. Brooke described the area around Manor "...I can sit on the porch before my door and can see miles of the most beautiful Prairie interwoven with groves of timber, surpassing, in my idea, the beauties of the sea..." Now, the natural landscape of wetlands and groves of trees is gone, and the seedbank is depleted.



Dry Fork Creek in Eastern Travis County. After years of agriculture and clearing the land, creeks in East Austin tend to be muddy.



### Getting a Handle on Trash in Creeks.

Watershed Protection staff completed an extensive study of trash in Austin creeks. Covering 110 miles of streams in 20 watersheds, the study documented the sources and distribution of trash in and near waterways. Single-use plastics were the most common items found. Another key finding was that trash tended to accumulate in some areas with approximately 75 percent of the trash found in only 10 percent of the study area. This may allow for increased efficiency in removing trash in the future. High concentrations of trash appear to be caused by the physical characteristics of the creek combined with a variety of trash sources. Trash tends to accumulate and stay in certain locations based on the characteristics of the creek, especially the amount of vegetation.

Although the study was not able to identify a single easy-to-implement solution, it has increased our understanding and provided additional insight into strategies to address this pervasive problem.

Crews install a trash boom on Boggy Creek to detain trash and provide a focused location to remove accumulated trash.





Watershed Protection crews remove trash from Waller Creek by hand



As part of benchmark research of strategies for managing trash, Watershed Protection tested a remote- controlled trash removal device in the Waller Creek inlet pond. This aquatic robot is designed for use in marinas to remove trash in between boats.

#### The Confluence at Waller Creek.

The U.S. Army Corps of Engineers awarded Watershed Protection a \$9 million federal grant for environmental restoration along Waller Creek in downtown Austin. It is the first grant awarded in the state of Texas from the U.S. Army Corps of Engineers' Environmental Infrastructure Program. The funding will be used to restore eroded streambanks, clean and manage stormwater and install resilient landscaping. This work is part of The Confluence project, the southernmost section of the 35-acre Waterloo Greenway near Lady Bird Lake.

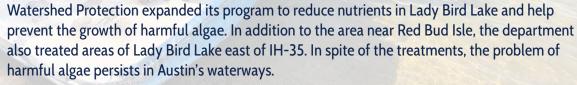
Rendering of an elevated walkway, one of many features that will allow visitors to explore the outdoors in the heart of downtown Austin. The Confluence also includes opportunities for visitors to interact with a spring, stone bluff, lakeside terrace and explorer's garden.

Bottom: The Confluence is a partnership between the Waterloo Greenway and the City of Austin. It is scheduled to start construction in 2023.







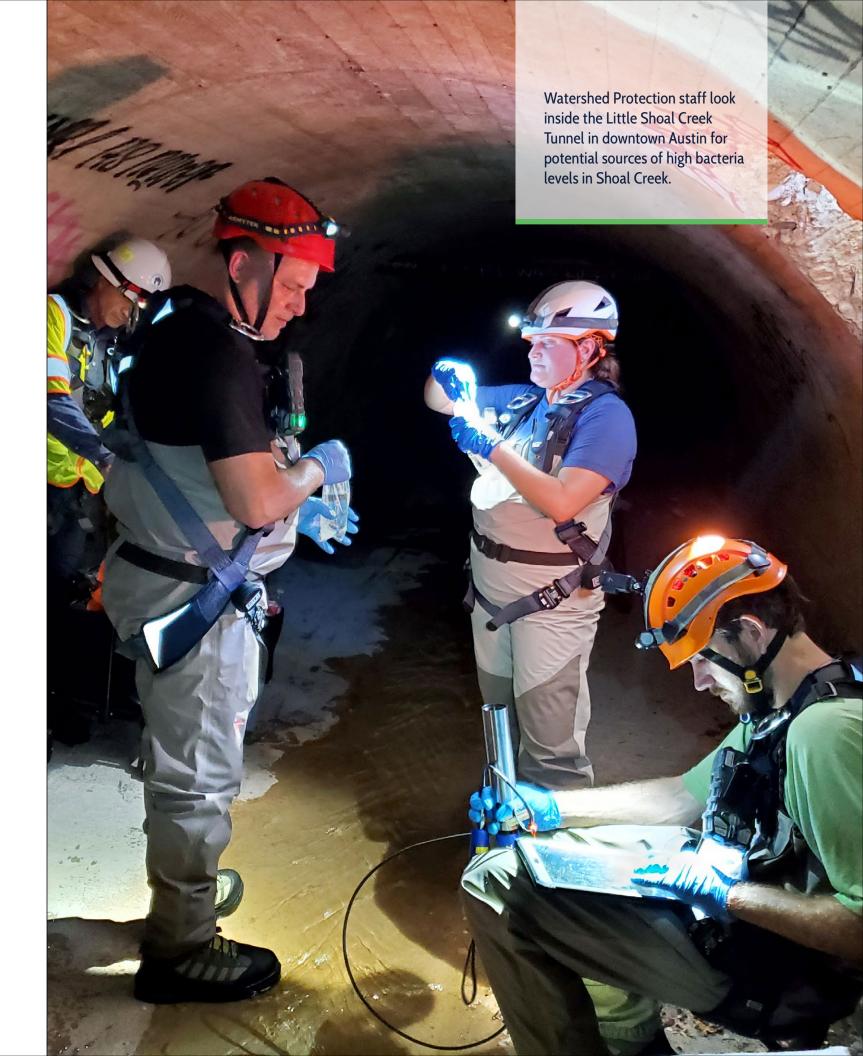




Staff completed 1,111 environmental reviews for development applications. Reviewers check that proposed developments are following Austin's strict regulations to protect critical environmental features like springs, wetlands, caves and canyon rimrocks, to ensure floodplain modifications are restored appropriately, and to ensure Planned Unit Developments are environmentally superior than current code.



Watershed Protection completed major repairs to this water quality pond in north Austin. Water quality ponds filter pollutants from stormwater and help protect the water quality in our creeks and lakes.



# Government THAT WORKS FOR ALL

\$717,132 \\
drainage charge discounts

ACTIVE PROJECTS

for customers on low or fixed incomes

**\$8,860,170**BUDGET

TRANSLATIONS
OF DOCUMENTS
COMPLETED

123% of high priority maintenance work orders completed

(A number over 100% indicates progress on a backlog of work orders from previous years)



#### **STRATEGIC DIRECTION 2023**

# Believing that city government works effectively and collaboratively for all of us-that it is equitable, ethical and innovative

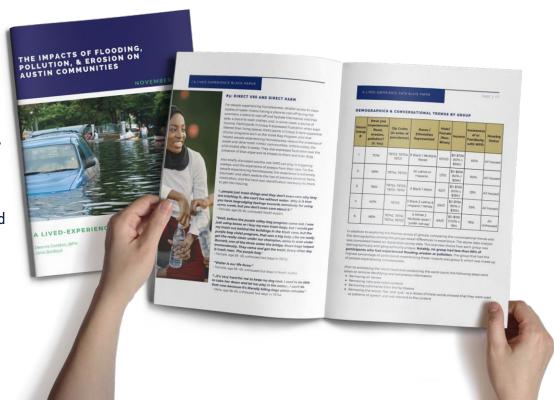
## Spanish? Chinese? Overcoming Language Barriers

To try to overcome language barriers, Watershed Protection translates some written documents and provides interpretation services at certain public meetings. The department expanded both these services with 65% more translations and offering interpretation services at more than twice as many meetings. The department started a quarterly Language Access Newsletter to educate employees on these services and adopted the City's iSpeak program for immediate interpretation needs.

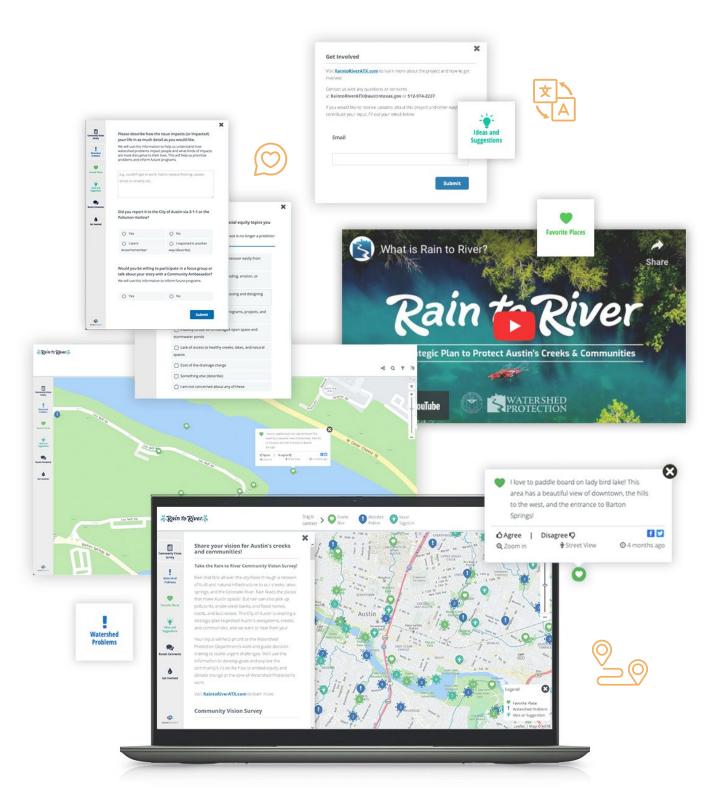
#### Rain to River

Watershed Protection began community engagement for Rain to River, a strategic plan to protect Austin's creeks and communities. This plan will guide the work of Watershed Protection for the next ten years and help tackle critical issues like climate change and equity. Through its engagement plan, the department is seeking community feedback to help shape our values, goals and priorities. Particular emphasis is being placed on hearing from communities of color and other groups who have been left out of past planning efforts.

To better reach underrepresented communities, the department held seven focus groups with historically-excluded communities and provided \$5,000 mini-grants to six organizations who will help further our goals for diverse representation







A comprehensive survey is helping to gather feedback on the experiences and priorities of the community. In addition to traditional questions, the survey includes a map where respondents can indicate favorite places, problem areas or suggest ideas. To date, almost 1,500 people have taken the survey. The survey is available online in English and Spanish with a widget that allows the survey to be translated into other languages. There are paper copies in six other languages.





Top Photo: Austin Nature Day was just one of 49 events that Rain to River staff attended to gather community feedback.

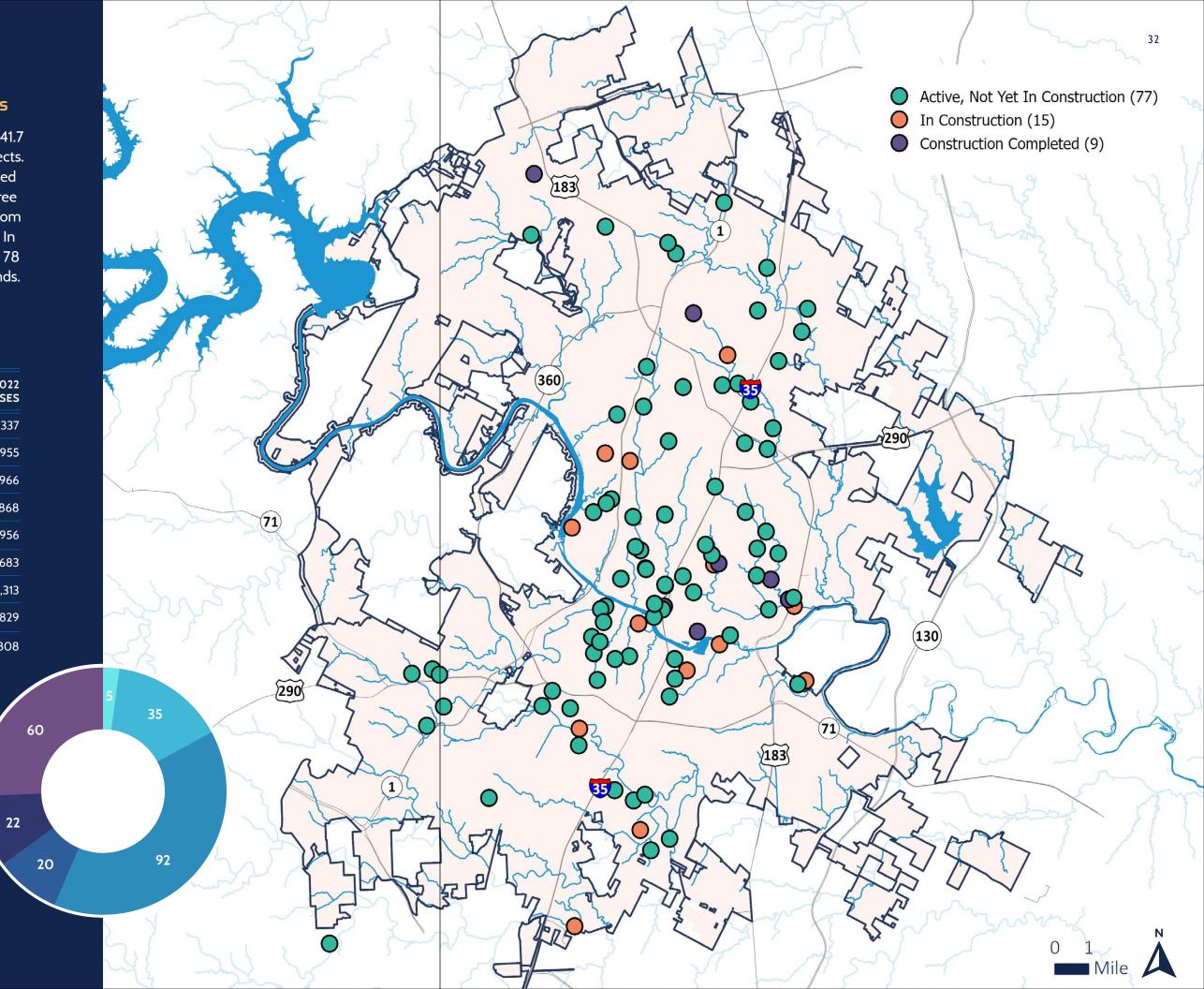
Bottom Photo: Ten Community Ambassadors gathered input from racially and economically diverse communities. Watershed Protection appropriated \$41.7 million for Capital Improvement Projects. These 156 active projects are distributed throughout Austin and advance all three missions to protect the community from flooding, erosion and water pollution. In addition, staff are actively working on 78 in-house projects, using operating funds.

## Capital Spending by Infrastructure Type

FISCAL YEAR FDU INFRASTRUCTURE TYPE	2022 EXPENSES
Drainage	\$14,895,337
Flood Control	\$13,211,955
Erosion Control	\$7,970,966
Water Quality Protection	\$2,254,868
Vehicles & Equipment	\$1,606,956
Information Technology	\$790,683
Plans & Studies	\$732,313
Buildings & Improvements	\$129,829
Land Acquisition	\$103,808

### FY22 WPD Projects by Phase (CIP AND IN HOUSE)

- Bid/Award/Execution Phase 5
- Construction Phase 35
- Design Phase 92
- Non-Infrastructure Projects 20
- Post-Construction Phase 22
- Preliminary Engineering Phase 60



# Culture & LIFELONG LEARNING

**ATTENDEES** AT OUTREACH **EVENTS** 

**5**K \$2,072,230 BUDGET

storm drains marked "Drains to Creek" by volunteers

128,976 visits to GROWGREEN.ORG



**STUDENTS REACHED** THROUGH OUR YOUTH EDUCATION & PARTNERSHIP PROGRAMS



#### **STRATEGIC DIRECTION 2023**

# Being enriched by Austin's unique civic, cultural, ethnic, and learning opportunities

## Transitioning Earth School back from Pandemic Operations

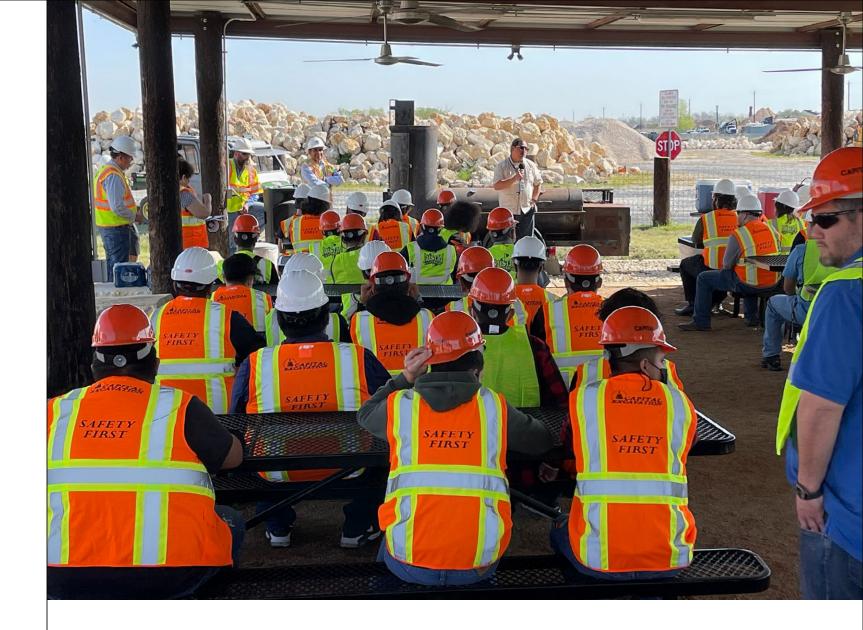
In 2022, Earth School converted to outdoor presentations on school grounds. Fifth graders gathered outside to learn about watersheds, the Edwards Aquifer, and actions to protect our creeks and springs. Students were taught about flood safety, modeled water flow in a watershed and aquifer, identified pollution threats, and learned how to protect water quality. Our education team's hands-on activities helped students understand the connection between science and their daily lives.

#### Field Operations Host High School Students

Watershed Protection and Public Works hosted the Austin Contractors & Engineers Association 2022 Construction Expo. Nearly 90 high school students had the opportunity to explore civil careers in the construction industry. Students rotated through rain garden demonstrations, equipment training simulations, and virtual-reality tours of the Waller Creek Inlet Facility.







## Delving into what motivates the community

Watershed Protection collaborated with Asakura Robinson and the University of Texas to launch the Our Rain, Our Waters survey. The survey looks at what makes people adopt pro-environmental behaviors such as installing cisterns, rain barrels or rain gardens, planting native trees or vegetation, reducing chemical use, picking up trash, etc. Asakura Robinson and the University of Texas will analyze the results and create a final report.





Watershed staff continued the City of Creeks
Learning series with over fourteen presentations
and 1,700 live views on various topics.
Watershed staff across all departments tuned
in to gain a deeper understanding of scientific
processes, programs, studies, history, and more.



Watershed Protection staff provided three tours of the Waller Creek Tunnel inlet facility, mostly to employees.



Austin Mayor Steve Adler, alongside the Austin City Council, proclaimed May 19, 2022, as the 20th anniversary of the Grow Green program. Watershed staff and partners were honored for their commitment to educating the community about environmentally friendly gardening practices.



Photo Above: Watershed Protection participated in the annual Roots & Wings Festival, a combined celebration of Arbor Day and Monarch Appreciation Day. The interactive demonstration of how water moves down a watershed was popular. Staff also let festival goers know about Rain to River and Grow Green, passed out swag and native wildflower seeds, and answered questions about the department.

Photo Right: Watershed Protection has worked with Urban Patchwork and the Parks and Recreation Department to teach two apprentices about the Rain Catcher Pilot Program. Apprentices previously completed a high school internship focused on Green Stormwater Infrastructure.





## Watershed Protection Hires Equity Officer

In March, Watershed Protection welcomed its first Equity and Inclusion Program Manager, Kye Tavernier. Having a dedicated, full-time position provides capacity and focus to the department's efforts to advance equity. A social worker by training, Ms. Tavernier brings a wealth of experience from Austin Public Health where she assisted with disaster response and crisis case management.

### **Equity Reviews**

Watershed Protection conducted equity reviews for Rain to River, proposed updates to Austin's environmental code and a new training and safety policy. During an equity review, staff consider the impact of the programs on racial equity and how the proposed programs can be adapted to enhance racial equity.

#### Training and Internal Inclusion

Sustainable and meaningful equity work requires the engagement of all Watershed Protection staff. The equity team is working on ways to expand and create more opportunity for the whole department to explore and develop curiosity about racial equity.

#### Field Engineering Prioritization

Watershed Protection developed a pilot program to focus on areas with a high Social Vulnerability Index. The goal is to deliver projects on a faster track than the standard Capital Improvement Project. During the pilot, the team zeroed in on one census tract and investigated all reports of drainage issues in that tract. This resulted in six potential projects to be designed in 2023 to help with erosion and drainage.



Welcome Kye!
OUR 1ST EQUITY & INCLUSION
PROGRAM MANAGER



Crews install grade controls to protect against erosion in Southeast Austin on Deadwood Drive. Six other potential projects in the same census tract were identified as part of a pilot program.

# SUSTAINABILITY & RESILIENCE

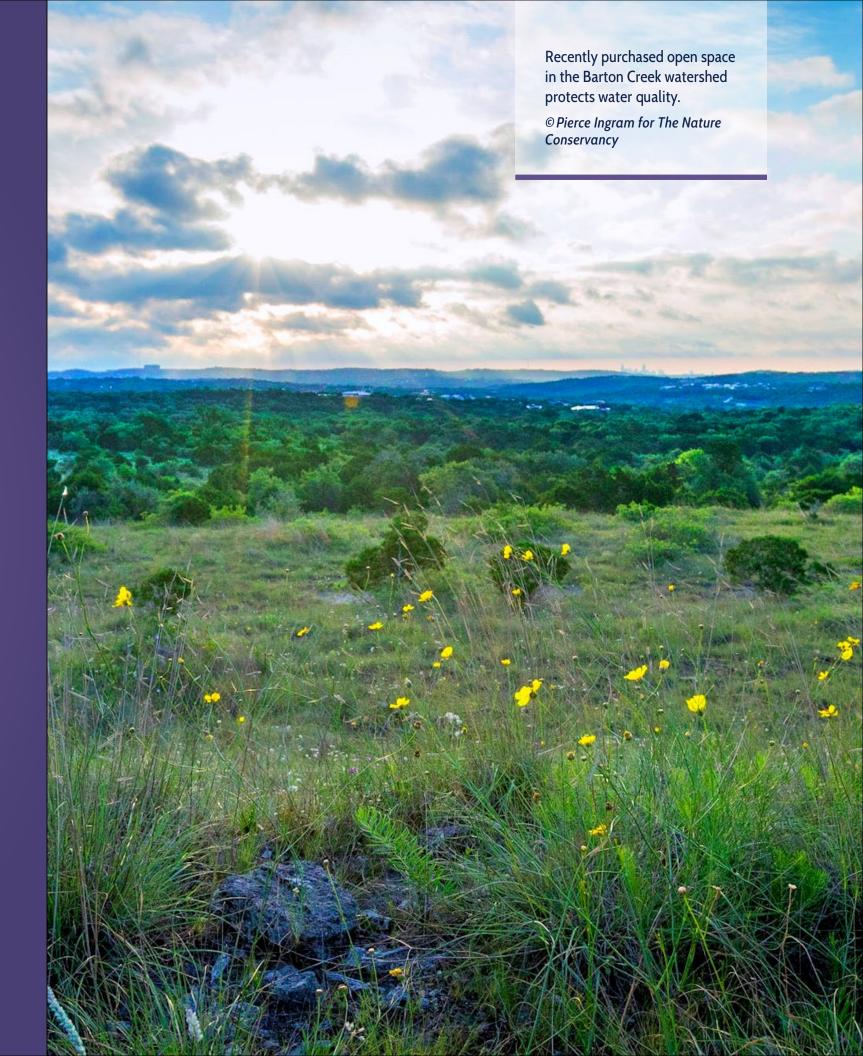
cumulative aCres

emergency action recommendations issued for flooding

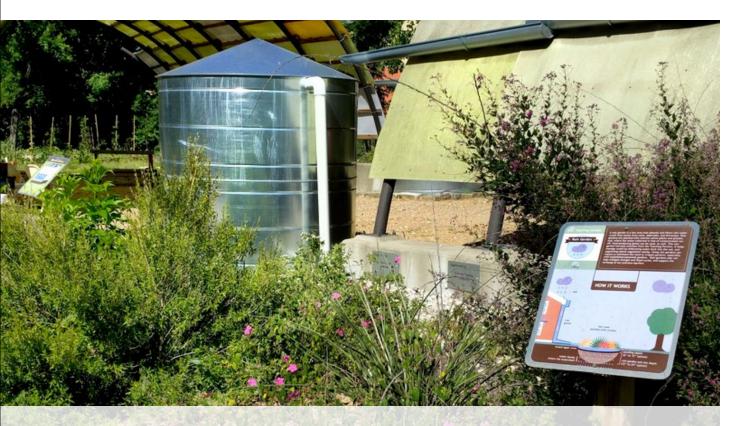
OF CRITICAL
ENVIRONMENTAL FEATURES
PROTECTED OR IMPROVED

# 1,866,154 GALLONS

OF STORMWATER DIVERTED FROM STORM DRAINS BY INFILTRATION & BENEFICIAL USE



SUSTAINABILITY AND RESILIENCE



The Sustainable Food Center uses a rain garden and cistern to help manage stormwater. Rain gardens and cisterns are two types of green stormwater infrastructure. In addition to protecting water quality, they also achieve other environmental benefits from water conservation to increasing wildlife habitat.

## Regulations are a key strategy to protect Austin's environment

Austin has been a leader in protecting its natural resources and water quality through regulatory measures for more than 40 years. Over the summer and fall of 2022, we finished the first phase of updates to Austin's Land Development Code. The updates went into effect on November 7. Our amendments included green stormwater infrastructure requirements, revised requirements related to stormwater management in parking lots, and strengthened wetland protections on Lady Bird Lake. Additional code amendments

streamlined the water quality resource protection code to further policy goals.

## Collaborating with the Global Community

C40 is an international network of cities working together to confront the climate crisis. The shared goal is to halve emissions of member cities in a decade. Watershed Protection participates in the Urban Flooding Network. This past year, Watershed Protection's Chaz Armijo, IT Supervisor, gave two webinars at C-40 events on "Incentivizing a Climate Resilient Ecosystem."



Biofiltration ponds are a type of green stormwater infrastructure. This one at Little Mexico Restaurant catches runoff from the parking lot. The updated code clarifies potential conflicts between landscaping requirements in parking lots and stormwater management.



Wetlands are a type of Critical Environmental Feature that has long been protected by Austin's regulations. The updated code strengthened these protections by Lady Bird Lake.





# HOMELESSNESS

330
SERVICE REQUESTS
RELATED TO
HOMELESSNESS
THROUGH 3-1-1

\$670,000 CONTRACT WITH THE OTHER ONES FOUNDATION \$290,000 CLEANUP CONTRACT

1674
to 15
of trash & Debris
REMOVED

#### Public Spaces Initiative

Watershed Protection collaborates with other City departments and nonprofits with the goal of making homelessness rare, brief and nonrecurring. Watershed Protection has assisted with cleanups associated with the Housing-focused Encampment Assistance Link initiative, known as HEAL. HEAL has moved 220 individuals into shelter during Fiscal Year 2022. The department also assisted with efforts to better coordinate cleanup activities between departments and to develop a citywide prioritization and data-sharing system.

Watershed Protection participates in the City's contract with The Other Ones Foundation to employ people who are experiencing homelessness. People experiencing homelessness have removed trash from hundreds of Watershed Protection locations. They also pull invasive plants, spread wildflower seed and clean up abandoned encampments.





Another contract helps with cleanup activities on land owned by the department, along creeks and within drainage infrastructure. This contract focuses on a handful of sites with large homeless encampments that pose the greatest flood, erosion or environmental threats.

**Below:** Pecan Park (Left), Williamson Creek (Right)





CONGRATULATIONS

# HIGH **ROCK STARS**





Katie Coyne, second on left, received a Leadership Award from the Austin Young Women's Alliance.



Ramesh Swaminathan received the National Community Service Award from the American Public Works Association.



Reilly Green Stormwater Infrastructure project received a Texas Raincatcher Award from the Texas Water Development Board.



Tom Franke, received the 2022 Outstanding Achievement Award from the Environmental and Water Resources Institute of the American Society of Civil Engineers.



Trisha Jenkins received the Exceptional Performance Award in Safety from the Texas Public Works Association (TPWA).



Waterloo Park received the 2022 Best Public Space Award from the Urban Land Institute and a "Best of Austin" Critics Picks Award from the Austin Chronicle for Best Park Reboot. (Shown above: streambank restoration of Waller Creek in Waterloo Park)

