City of Austin
Austin City Auditor's Office

Audit Report

Flood Preparedness and Awareness

March 2026

Austin is in Flash Flood Alley and has a history of major floods. Austin Watershed Protection (AWP) has a robust approach to flood preparedness. However, opportunities exist to improve public outreach and the department's data. We recommend AWP focus more on flood education and awareness and be more consistent when collecting and using data.

Austin City Auditor's Office

Audit Highlights
March 2026

Flood Preparedness and Awareness

Objective

The objective of this audit was to determine if the City is addressing flood-related risks and informing the public about how to handle them.

What We Found

The City's flood preparedness strategy is an ongoing, year-round process. Austin Watershed Protection's (AWP) preparedness strategy includes risk mapping, development regulations, flood damage reduction efforts, warning and response procedures, and public information campaigns.

In addition, AWP is improving operations through a comprehensive update of its strategic plan and development of asset management plans. AWP has also restructured and added additional staff focusing on strategy, emergency management, and equity.

Since the City cannot fully eliminate the risk of flooding, residents and visitors should be aware of their risk and what to do in the event of a flood. We found that in recent years:

- The floodplain has expanded and the number of buildings within the floodplain has increased.
- Most flood-related Austin 3-1-1 service requests occurred outside of the floodplain.

AWP is undertaking several efforts to promote flood safety awareness and preparedness in the city. Austin is currently a Class 5 community which provides a 25% discount on flood insurance for residents. While AWP has a robust approach to flood preparedness, we identified some areas where they could align with practices from leading and peer communities. We identified the following areas where the City could improve its efforts:

- Information Accessibility
- Resources for Targeted Audiences
- Actionable Preparedness Information
- Plain-language Definitions and Frequently Asked Questions
- Social Media Coordination

Additionally, we found some data issues that may impact AWP's ability to prioritize areas with the highest risk and measure progress towards goals.

What We Recommend

The Director of Austin Watershed Protection should work with the City Manager to ensure residents and visitors receive clear and consistent messaging on flood risks and what to do in the event of a flood. The department should also ensure they have the necessary data to best plan and measure their work.

Contents

Cover: Photo of rain drops, retrieved from Pixabay

Objective

Is the City addressing flood-related risks and informing the public about how to handle them?

Background

The City of Austin is in an area known as Flash Flood Alley. This means the region often experiences floods that happen quickly and can be severe. Austin has experienced nine major emergency events since 2013. Of those nine events, at least four were floods:

- 2013 Halloween Flood - A sudden, destructive flash flood hit the Onion Creek area. The damage cost over $100 million, and hundreds of homes were badly damaged or destroyed.
- 2015 Memorial Day Flood - Wide-ranging flooding impacted downtown Austin and the surrounding region. About 50 city roads were flooded and hundreds more were flooded in the greater Austin area.
- 2015 Halloween Flood - This event led to a federal disaster declaration for Austin and Travis County. Flooding damaged or destroyed hundreds of homes and resulted in the loss of several lives.
- 2018 Colorado River Flood - Widespread rainfall caused the flooding of the Colorado River. This resulted in a boil water notice that affected residents, schools, hospitals, and businesses.

At its worst, the water flowing in Onion Creek during the 2013 flood was almost twice the average flow rate of Niagara Falls.

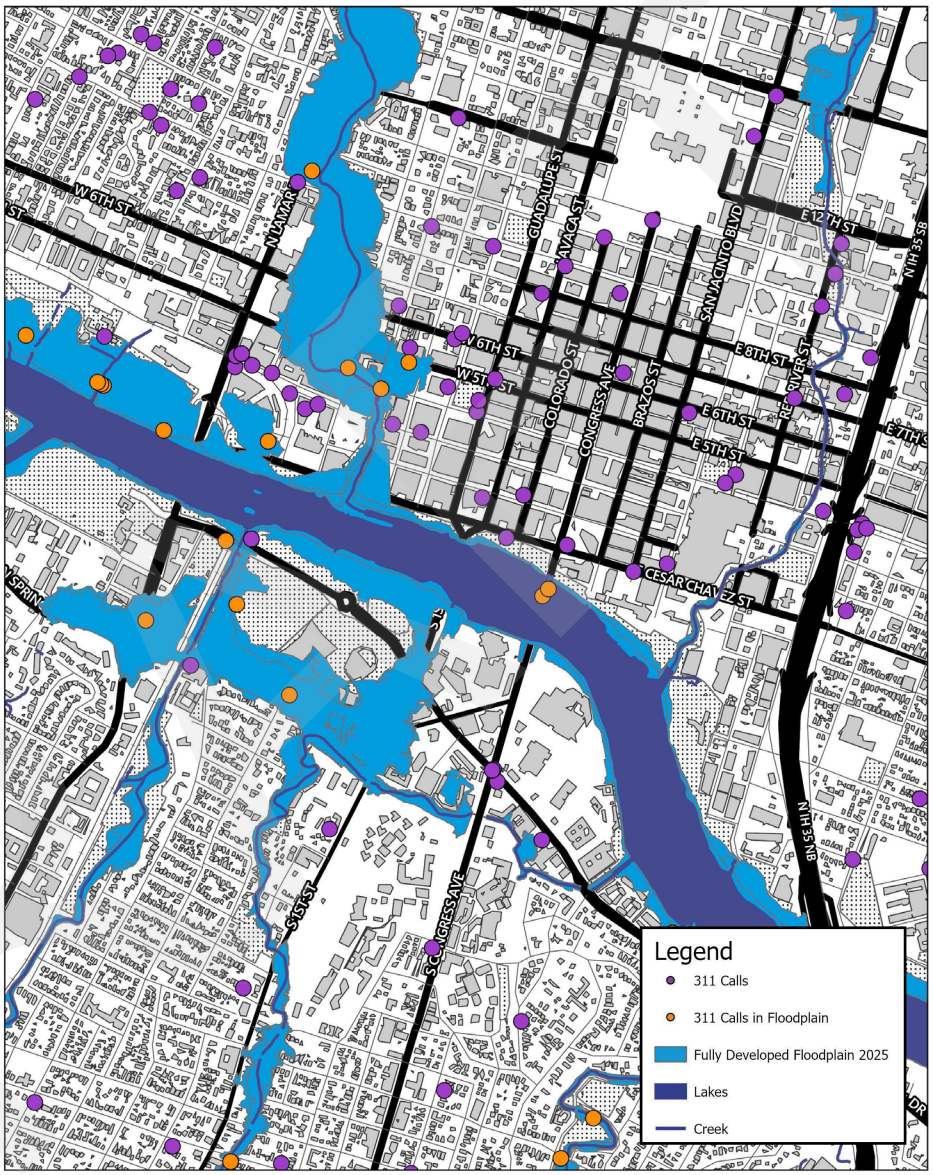
Additionally, there were two noteworthy flooding events in 2025. The May Microburst event and Independence Day flood resulted in several low water crossing closures, rescues, and flooded structures.

Everyone in the city faces some risk of flooding. This can come from overflowing creeks or heavy rain on the streets. Staff emphasized that the Microburst event showed you do not have to be in a floodplain to experience flooding.

We compared the 2019 and 2025 floodplains and the buildings they contained. We found that the City's floodplain has expanded and the number of buildings within it has increased. Staff explained this change is mostly due to an updated rainfall study. This study showed that Austin now faces heavier rainfall than in the past. As a result, many buildings that were initially built outside of the floodplain are now within the floodplain.

We analyzed Austin 3-1-1 service requests related to flooding from 2021 to 2025. We found that approximately 90% of these flood requests came from areas outside the floodplain. This shows that flooding is a citywide concern.

Exhibit 1: Many flood-related Austin 3-1-1 calls are about areas outside of the floodplain



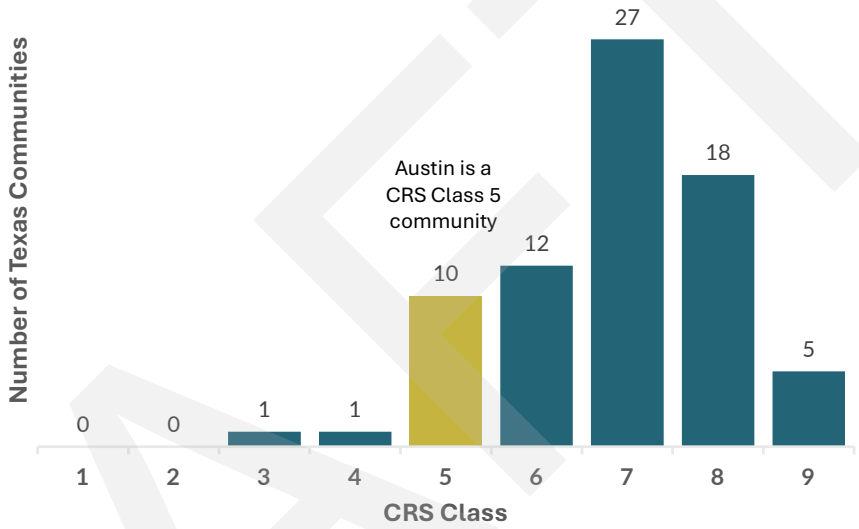
Source: Austin City Auditor's Office (ACAO) analysis of flood-related Austin 3-1-1 service requests, December 2025

The City's flood preparedness efforts involve several stakeholders. These stakeholders have various responsibilities for managing actions taken before, during, and after a flooding event. The primary department tasked with maintaining the city's flood-related infrastructure is Austin Watershed Protection (AWP). AWP manages a vast network of stormwater infrastructure. Its responsibilities include roughly 1,200 stormwater ponds and over 1,250 miles of closed storm drains. AWP also oversees roughly 114 miles of engineered channels and 880 miles of natural creeks. Effective management of these assets is important for public safety and flood prevention.

AWP is the City's representative for the Community Rating System (CRS) program. The CRS is a part of the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP). A community is assigned a "CRS Class" ranging from 1 to 10 with Class 1 being the best rating. The class rating determines the discount residents receive on their flood insurance. Austin is currently a Class 5 community which provides a 25% discount on flood insurance for residents.

The NFIP offers federally backed flood insurance to participating communities. A Class 1 community receives a 45% discount on flood insurance.

Exhibit 2: Of the 74 Texas communities that participate in the CRS program, only the cities of Dallas and Grand Prairie have a higher discount than Austin



Source: ACAO analysis of Texas communities CRS Class ratings, January 2026

Finding 1

While the City cannot fully eliminate the risk of flooding, Austin Watershed Protection (AWP) has a robust approach to flood preparedness.

AWP's flood preparedness strategy is an ongoing, year-round process. AWP is improving the City's flood preparedness through mapping and regulations, flood damage reduction efforts, warning and response processes, and public information campaigns.

Mapping and Regulations – AWP uses the most up-to-date rainfall data to create maps and models to show flood risk. They also use strict regulations to manage development in the floodplain.

Flood Damage Reduction – AWP reduces flood damage through Capital Improvement Projects such as the Waller Creek Tunnel. Currently, the department uses a reactive model for maintenance. However, the department's new strategic plan aims to emphasize more proactive, preventative work that is essential for long-term community resilience.

Warning and Response – AWP has a unique Flood Early Warning System team that monitors and communicates flood conditions. AWP recently developed an emergency management program that expands their response capacity.

Public Information - AWP uses an equitable approach to conduct year-round, ongoing outreach to inform the community about flood risk. This includes community outreach events, social media, and online resources.

As an example, the website ATXFloodSafety.com serves as a central information hub. It contains links to important information for before, during, and after a flood. Some key safety tips include:

- Check to see if you live or work in a floodplain
- Sign up for emergency alerts at WarnCentralTexas.org
- Create a safety plan for your family and assemble an emergency kit
- Learn about flood insurance
- If you see water over a road, turn around and find another route

AWP also provides digital tools for the public to get information on flood risk. Some of these tools include:

- ATXFloods.com: Real-time information about road closures due to flooding
- FloodPro: View Austin's floodplain maps and drainage systems
- Lower Colorado River Authority Hydromet Site: Get real-time rainfall and stream flow data

In addition to the efforts above, AWP is improving operations through a comprehensive update of its strategic plan and development of asset management plans. AWP has also restructured to add additional staff focusing on strategy, emergency management, and equity.

Finding 2

AWP could do more to ensure residents and visitors are aware of flood risks and ensure the department has the necessary data to plan and measure their work.

We looked at six leading communities that scored highly in FEMA's Community Rating System's public information category.[1] We identified several practices that could inform Austin's flood education and awareness strategy, such as:

- *Action-Oriented Steps:* Provide detailed, action-oriented steps to prepare for, respond to, and recover from a flood
- *Audience-Specific Online Resources*: Provide online resources tailored for specific audiences, such as developers, older adults, renters, unsheltered populations, etc.
- *Clear Terminology and Explanations*: Provide plain-language explanations of key terminology (e.g., flood watch vs. flood warning)
- *Flood-Related Frequently Asked Questions (FAQs)*: Provide extensive plain-language FAQs regarding flooding
- *On-Site Consultation*: Advertise staff ability to visit residents' homes and properties to advise on flood mitigation
- *Physical Signage and Water Marks*: Use signs to notify people of flood-prone areas and water marks to show historic water levels
- *Prominent Information Access*: Locate links to flood information prominently on the City's website homepage or central location
- *Scenario Planning*: Illustrate different potential flood scenarios residents and visitors may face and recommend alternative routes

We conducted research to see which of these practices Austin and its peer cities did.

Broadly speaking, there are two main kinds of flooding in Austin:

Creek Flooding - This happens when large amounts of heavy rain cause local rivers and creeks to rise out of their banks and flood streets and buildings.

Localized Flooding - This happens when the pipes, storm drains, and other drainage systems in the City cannot handle all the rain coming down. The water then pools in low areas of streets and neighborhoods.

Exhibit 3: Austin, like its Texas peers, appears to be doing some but not all of identified practices

City	Action-Oriented Steps	Flood Related FAQ	Information Available on Website	Advertise On-Site Consultation	Scenario Planning
Austin	Yes	No	Yes	No	No
Dallas	Yes	No	Yes	Yes	No
Houston	Yes	Yes	Yes	No	No
San Antonio	Yes	No	Yes	No	Yes

Source: ACAO review of peer cities' efforts related to flood education and awareness, December 2025

Austin lacks some services that its peers provide. Dallas offers on-site consultations to inspect and provide advice on flooding and drainage issues. San Antonio has established maps with safe routes in key low water crossing locations. These maps were created so citizens can find alternative routes away from flooded roads.

[1] We reviewed Tulsa, Oklahoma (CRS class 1), Pima County, Arizona (class 2), Pinellas County, Florida (class 2), Sacramento County, California (class 2), Avalon, New Jersey (class 3), and Louisville-Jefferson County Metro, Kentucky (class 3).

In terms of providing information to residents and visitors regarding flood risk, we found that all cities have flood information available on their websites. Although Austin has information on their flood safety website, core flood information is often buried, and users must navigate through several external links to find flood preparedness tips.

Additionally, we found that Austin's online resources are not tailored to specific groups. In contrast, San Antonio uses its flood safety site and guidebook to provide specific guidance for homeowners, businesses, the unsheltered population, older adults, and those with disabilities. They also include specific resources for pet safety during floods.

A Flood Watch is issued when flooding is possible. A Flood Warning is issued when flooding is happening or about to happen. Move to higher ground and never drive or walk through floodwaters.

Austin's online resources also offer limited plain-language explanations and currently lacks a flood-related FAQ section. Technical terms are not always explained simply. The City defines a 100-year storm but does not explain other technical terms. Conversely, San Antonio explains the differences between flood watches and warnings. They also provide what actions to take during each alert. San Antonio and Dallas also explain their different emergency alert systems in simple terms. Understanding these terms can help citizens understand how an approaching storm may impact them and what actions they should take.

In addition, we found that AWP did not consistently share flood alerts across their social media platforms. Emergency information in Spanish was also not consistently shared.

The 100-year storm is an event that has a 1% chance of occurring in any given year. Properties in the 100-year floodplain have roughly a 1 in 4 chance of flooding over the course of 30 years.

Residents, tourists, and others in Austin may not know their flood risks or how to respond during a flood which could lead to loss of life and property. Staff consistently noted the need for increased education. Staff also highlighted challenges in reaching the most vulnerable populations, overcoming resident skepticism about floodplain changes, and ensuring residents understand unique Central Texas risks and actionable warnings. By adopting some of the identified practices, the City can help its residents and visitors stay safer during flood events.

Limitations in data collection and reporting may impact AWP's ability to prioritize areas with the highest risk and measure their progress towards goals.

AWP uses advanced modeling to identify potential risk areas related to creek flooding. However, local flooding responses are largely based on service requests that residents and staff make to Austin 3-1-1. The reliance on Austin 3-1-1 may create potential gaps in service. Residents must be aware of the Austin 3-1-1 system and be willing to use it. This may lead AWP to prioritize areas with active reporters over areas with higher risks. Staff said that they are working on developing citywide modeling to better understand localized flooding. This transition would shift the department toward a proactive strategy. However, staff indicated that this effort is resource-intensive and faces challenges due to recent cuts to federal funding.

During our analysis of maintenance work orders, we identified data limitations related to how AWP collects and tracks data. Data limitations may make it hard to track progress towards goals, identify trends, and identify areas that need more public outreach.

Recommendations and Management Response

1 **To minimize the loss of life and property, the Director of Austin Watershed Protection should work with the City Manager to ensure residents and visitors receive clear and consistent messaging about flood risks and what to do in the event of a flood, including:**

- **Consistent messaging across the City's websites and social media accounts**
- **Targeted and clear information for vulnerable groups, including people experiencing homelessness, older adults, renters, and visitors.**

Management Response: Agree

Austin Watershed Protection (AWP) recognizes that while Austin has a robust flood safety awareness and preparedness strategy, there are opportunities to strengthen communication, engagement and outreach, particularly for vulnerable and historically underserved communities. Flooding is a citywide concern, and effective communication is critical to saving lives and protecting property and our environment. AWP will continue to lead with equity, transparency, and collaboration to ensure Austinites have the tools and knowledge they need to prepare for and respond to flood events.

With support from the City Manager's Office, AWP is committed to working collaboratively with partner departments across the City to ensure that flood preparedness messaging is consistent, clear, and actionable. The City will continue to prioritize equity and accessibility in all communications so that our community members, regardless of language, location, or socioeconomic status, understand their flood risk and know how to respond during an emergency.

The AWP Communications team leads a unified strategy combining community engagement, education, marketing, and outreach to equitably promote flood preparedness. Key components include:

- Inclusive Engagement: Connect with underserved communities, remove barriers like language and transportation, and meet people where they are.
- Community Partnerships: Collaborate with local organizations, deliver culturally relevant events, and amplify community voices.
- Flood Safety Campaigns and Events: Host citywide outreach and engagement activities that include training, resource distribution, and signature events such as Flood Safety Awareness Week, Flood Safety Fest, and the Flood Safety Video Contest.

Proposed Implementation Plan: With support from the City Manager's Office, AWP will:

- Enhance information accessibility by simplifying technical language through digital resources on the City website and social media.
- Develop audience-specific resources for renters, older adults, unhoused populations, and other vulnerable groups.
- Improve social media coordination with partner City departments to cross promote information and resources in English and Spanish, including definitions of different flood threat levels.
- Explore peer cities' practices, such as prominent information access, to further strengthen community resilience.
- Coordinate with partner City departments to target flood-prone areas and vulnerable groups through the City's alerts messaging system with flood preparedness messaging at the start of traditional flood seasons in Austin and prior to high-confidence heavy rain events.

Proposed Implementation Date: September 30, 2026

2 **To strengthen the consistency, reliability, and use of data that informs flood-risk prioritization, the Director of Austin Watershed Protection should:**

- **Clearly define and standardize the minimum data elements required for flood-related inspections and work orders across applicable asset classes**
- **Strengthen processes and expectations to ensure required information is consistently and accurately captured in the work order management system**
- **Align departmental policies, procedures, and quality assurance practices with established data standards to support consistent work prioritization and decision-making.**

Management Response: Agree

AWP appreciates the Auditor's Office thoughtful review of our data collection and management practices and agree with the findings and observations. AWP is focused on targeted refinements such as those listed below, that build on existing practices, improve standardization, and strengthen the linkage between asset condition, criticality, and work execution to ensure data remains reliable, actionable, and decision ready.

- Refine data standards and standard operating procedures for asset inspection, work order creation, and work order execution to consistently capture information within the work order management system.
- Improve quality assurance process to monitor compliance with data standards and alignment of work order priority and asset criticality ratings.
- Work with AWP IT Management, Asset Management, Pond Inspection and Dam Safety, and Operations Ponds Maintenance teams to determine paths forward to better align stormwater control measure (SCM) work order ratings with asset risk profiles.

Proposed Implementation Plan:

- AWP will update data standards and quality control process improvements, including stormwater control measure (SCM) work order priority and risk profile rating alignment quality control.
- AWP Operations team will develop a work plan and timeline with department stakeholders to improve day-forward business processes for the alignment of stormwater control measure (SCM) work orders and asset management risk profiles. This work plan will include an assessment of technical feasibility of including other asset types.

Proposed Implementation Date: September 30, 2026

Scope

The audit scope included the City's current flood preparedness efforts with historical context dating back to 2001.

Methodology

To complete this audit, we performed the following steps:

- Interviewed City staff from Austin Watershed Protection
- Reviewed relevant polices, plans, procedures, prior audits and reports
- Researched practices for flood education and awareness
- Analyzed City-maintained floodplain maps (2019 and 2025) and existing structure footprints (2019 and 2021)
- Reviewed floodplain-related local development code and regulations
- Reviewed department operational and emergency response procedures
- Reviewed department, City, and National Weather Service alerts and social media communications
- Reviewed City, leading communities, and peer cities' FEMA Community Rating System scoring
- Reviewed City-maintained stormwater asset inventory counts, conditions, and risk ratings
- Analyzed flood-related Austin 3-1-1 data from FY2021 to FY2025
- Analyzed City-maintained closed stormwater system and pond work order data from FY2021 to FY2025

Audit Standards

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The Austin City Auditor's Office was created by the Austin City Charter as an independent office reporting to City Council to help establish accountability and improve City services. We conduct performance audits to review aspects of a City service or program and provide recommendations for improvement.

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