

Eligible Activity: Infrastructure Improvements to Reduce Flood Risks

Methodology for Project Selection:

The City of Austin seeks funding for a flood risk mitigation project to protect critical infrastructure through the Community Development Block Grant Mitigation (CDBG-MIT). Funds from this grant will be used to accelerate the overall project which was approved as part of the City of Austin's 2016 Mobility Bond program. The stand-alone Phase 1 project has a current budget shortfall of approximately \$10 million. Austin City Council approved a resolution authorizing the City Manager to submit an application for design and construction funding of the roadway and bank stabilization improvements to Fallwell Lane, Sand Hill Energy Center, and South Austin Regional Wastewater Treatment Plant Access and Flood Risk Mitigation projects. After award of any grant funds, Council will obligate its local match by entering into an Agreement for Award.

Background & Need

The Fallwell Lane Capital Renewal Project is located in the City of Austin, in Travis County. The project area is located approximately one (1) mile northeast of the intersection of State Highway 71 (SH 71) and SH 130, and is bounded by the Colorado River to the north and east, the Onion Creek to the south, and SH 130 northbound frontage road to the west, as shown in Figure 1 – Project Location Map. The project is affected by two watersheds:

- Colorado River watershed
- Onion Creek watershed.

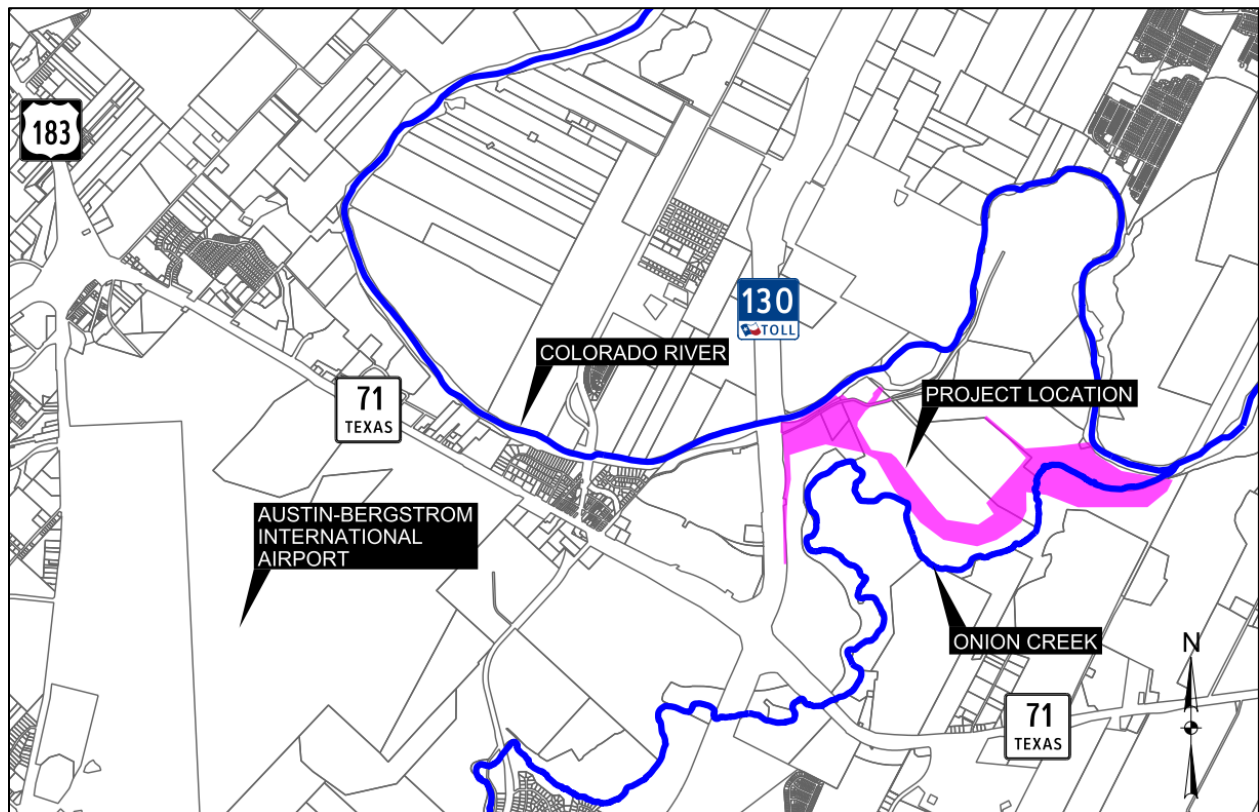


Figure 1: Project Location Map

The Fallwell Lane project includes roadway, and stream bank stabilization and utility relocation components to protect Austin Energy's Sand Hill Energy Center (SHEC) and Austin Water's South Austin Regional (SAR) Wastewater Treatment Plant from flood and erosion damages caused by flows up to the 100-year event. Fallwell Lane is the sole access to these critical facilities, and access to the two facilities would be preserved through the project.

The study area experienced severe flooding with damages from the October 2013 and October 2015 flood events. Fallwell Lane was inundated by overflows from Onion Creek, which washed over the road and into the Colorado River. These massive overflows were approximately 3-feet deep and damaged portions of the road, exposing critical utilities. These flows also caused severe erosion of the Colorado River bank, including the portion of river bank where the Austin Energy raw water intake structure is located. Additionally, the Onion Creek overflows came close to over-topping the existing earthen berm located to the south of Austin Energy SHEC and SAR Wastewater Treatment Plant (WWTP).

Fallwell Lane: Fallwell Lane provides access from the SH 130 frontage road to the SHEC and SAR WWTP, in addition to a privately-owned horse farm (Rio Vista Horse Farm). Refer to Figure 2 for location of these sites within the project area. As described above, portions of Fallwell Lane experienced severe damage due to the massive Onion Creek overflows inundating the area. After each incident, temporary repairs to Fallwell Lane were made to provide access to these facilities. Options for restoring and protecting Fallwell Lane, including alternative alignments, were evaluated as part of the PER, with the overarching goal of providing a stable road that would be accessible in a 100-year flood event.

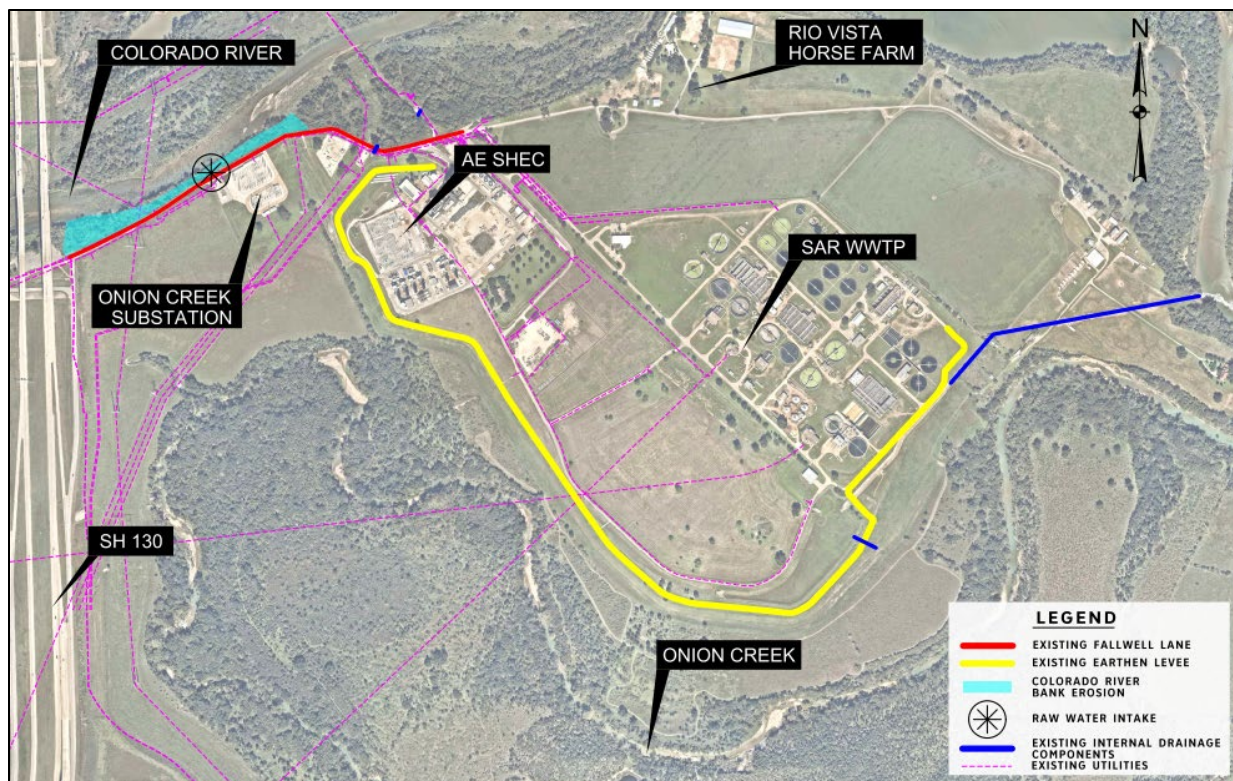


Figure 2: Project Existing Conditions



Figure 3: Fallwell Lane Failure

Austin Energy Raw Water Intake Facility: In 2003, Austin Energy constructed a raw water intake on the south bank of the Colorado River to provide an alternate source of cooling water to the plant. This intake structure is located directly north of the Austin Energy SHEC and is currently damaged to the extent that it is not functional. During the October 2015 flood event, flood waters from Onion Creek caused significant erosion to the streambank at the raw water intake. This erosion and bank degradation exposed the intake conduit and piping, damaged the access stairways to the intake structure, and destroyed the stairway landing, as can be seen in Figure 4 below. The intent of this project is to repair the erosion damage at the site of the intake, not to repair the intake itself. Austin Energy may repair the intake at a later time or abandon it for a more suitable site in the future.



Figure 4: Fallwell Lane Failure and Colorado River Failure near Raw Water Intake

Colorado River Streambank: The streambank erosion was not limited to the location of the raw water intake structure; rather, it was common to the stretch of river bank along Fallwell Lane, between SH 130 north-bound frontage road, to an area just east of the Austin Energy Onion Creek Substation. Temporary repairs have been made to stabilize these eroded locations; however, it is evident that a long-term, sustainable solution is required to prevent future significant bank failures.



Figure 5: 2015 Flood Event over Fallwell Lane

Environmental Conditions

The City of Austin previously contracted with an environmental consultant to review available environmental data, prepare a summary of environmental constraints, and evaluate each presented design alternative for environmental permitting requirements. On November 14, 2017, the consultant conducted a field visit of the project site to collect pertinent data. During this site visit, the consultant observed and marked the Ordinary High-Water Mark (OHWM), to establish the boundary line for the Waters of the U.S. A desktop review was conducted, supporting the field visit findings, from which an Environmental Constraints Map (ECM) was prepared. The consultant also prepared a preliminary Permitting Analysis Report to document the city, state, and federal regulations with regards to the proposed alternatives, including estimated permitting durations. Once the recommended alternative was selected, the Permitting Analysis Report was further refined to provide more detail with respect to this proposed project elements. A copy of this preliminary Environmental Constraints Map and Permitting Analysis Report is located in Appendix C of the PER which included in this application.

A detailed inventory of the environmental coordination requirements may be found in Appendix C of the PER. Below is a list of the agencies and departments that may be involved for permitting purposes, during different stages of the project:

1. City of Austin Development Services Department (DSD)
2. City of Austin Watershed Protection Department (WPD)
3. City of Austin Parks and Recreation Department (PARC)
4. Travis County
5. Texas Commission on Environmental Quality (TCEQ)
6. Texas Parks and Wildlife Department (TPWD)
7. Texas Historical Commission (THC)
8. Texas Department of Transportation (TxDOT)
9. US Army Corps of Engineers (USACE)

10. US Fish & Wildlife Services (USFWS)
11. Federal Emergency Management Agency (FEMA)
12. National Environmental Policy Act (NEPA)

Previous Disasters

In the October 2013 and October 2015 flood events (approximate 50-year to 75-year flood events compared to the Atlas 14 100-year event), flood water from Onion Creek left its normal channel and flowed overland to the Colorado River, submerging and damaging Fallwell Lane, and isolating both critical facilities. The damage also included severe erosion of the Colorado River bank and destroyed the raw water intake. Austin Water's emergency planning targets having the SAR WWTP back on line within a few hours to avoid untreated discharges that may occur within as little as 24 hours from start of the disaster. With access to the plants cut off, helicopters from the City of Austin Fire Department were required to ferry crews in and out of the plants. Approximately six weeks were required to restore Fallwell Lane each time.



Figure 6: Fallwell Lane Damages Under SH 130 Looking West

Population at Risk

After the October 2013 and October 2015 floods, it was apparent that the Austin Water SAR WWTP and Austin Energy Onion Creek Substation and SHEC facilities were at risk of experiencing significant future

flood waters damages. Additionally, the access to these facilities had been damaged in the flood events and remained susceptible to future damages. Furthermore, Texas Commission on Environmental Quality (TCEQ) rule 217.328(c) requires wastewater treatment facilities to have a minimum of one (1) all-weather access road above the 100-year floodplain. Fallwell Lane serves as the single access road for the SAR Wastewater Treatment Plant and is currently within the 100-year floodplain. While TCEQ grandfathered the SAR WWTP from this rule, Austin Water cannot expand the wastewater plant as currently planned, without meeting this all-weather access rule.

To comply with TCEQ regulations and to prevent repeated infrastructure and other flood related failures, several individual studies and remediation projects have been completed by individual stakeholders. The studies and projects had been purposed to address a single issue or location to benefit a limited number of stakeholders. However, the City of Austin realized that these individual projects could be optimized by developing a holistic approach for the reconstruction of Fallwell Lane, restoration and stabilization of the eroded portions of the Colorado River bank, and flood mitigation strategies. This would provide mutual benefits to all city department stakeholders and improve mitigation outcomes for the population at risk. In November 2016, Austin voters approved the City of Austin 2016 Mobility Bond, which authorized the City to issue \$720 million in general obligation bonds to fund transportation and mobility improvements, including the Fallwell Lane Capital Renewal project. The components proposed within the stand alone Phase 1, are the priority elements of the overall Fallwell Lane Capital Renewal Project.