
City of Tulsa
Repetitive Loss Area Analysis
South Tulsa Basins

August 18, 2026



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Introduction

The National Flood Insurance Program (NFIP) is a federal program administered by the Federal Emergency Management Agency (FEMA) that provides flood insurance to property owners in participating communities. In exchange, communities agree to adopt and enforce floodplain management regulations designed to reduce future flood risk. These regulations establish minimum standards for development in flood-prone areas and are intended to minimize damage to structures and infrastructure over time. The City of Tulsa has adopted its floodplain management regulations in Title 11A of the City's Code of Ordinances.

To encourage communities to go beyond these minimum requirements, FEMA established the Community Rating System (CRS). The CRS is a voluntary program that provides flood insurance premium discounts to policyholders in communities that implement additional floodplain management, public outreach, and hazard mitigation activities.

Over time, the NFIP has continually faced the job of balancing flood claim payments with insurance premium affordability, particularly while some properties flood more frequently than others. A subset of properties that cause a disproportionate impact to this balance are repetitive loss properties. FEMA defines repetitive loss properties as any property that has been paid two or more flood insurance claims of \$1,000 or more in a 10-year period. These repetitive loss properties account for approximately 25 to 30 percent of the NFIP's total claim payments, or about \$200 million annually, while representing only 1 percent of NFIP-insured properties nationwide. To aid in managing this issue, one of the requirements of the CRS is that communities identify all repetitive loss properties in their jurisdiction and work with the owners in finding ways to reduce or eliminate future flood damage. This initiative has been very successful in reducing flood losses and claims.

Using NFIP repetitive loss data, communities must analyze and map the surrounding areas where similar flooding conditions may exist. These areas are referred to as Repetitive Loss Areas (RLAs). For each RLA, the community is required to follow a 5-step process: notify affected property owners, assess potential flood risks, and develop strategies to reduce or eliminate future flood damage. As a CRS Class 1 Community, the City of Tulsa is required to update these reports in time for its program verification cycle. The updates must review the flooding and building conditions and modify the repetitive loss areas and their analyses accordingly. This 2026 update to the repetitive loss area analysis is intended to fill this verification requirement.

Background

The City of Tulsa's flooding history dates back to before statehood and has grown with the City. In the post-World War II era, the City experienced rapid development and expansion into what has become the Mingo and Joe Creek watershed. Most of this development occurred in the low-lying floodplains of these creeks which resulted in increased flood risk.

Tulsa's rapid development during this time was not singular, many communities across the country were experiencing urbanization and increased flood loss. In response, the U.S.

Congress established the National Flood Insurance Program in 1968. The City of Tulsa joined the NFIP in 1974.

By the 1980s, Tulsa had been experiencing floods in rapid succession, with nine floods occurring over 15 years¹. Two specific storms contributed largely to the number of repetitive loss properties in the City of Tulsa: the June 1979 and May 1984 floods. As of this 2026 update, the 1984 flood is still maintained as the City's Flood of Record.

Many of the City's repetitive loss properties filed claims in 1979. Significant flooding that year occurred in the Little Joe Creek and Dirty Butter Creek watersheds². According to a June 1979 National Oceanic and Atmospheric Administration (NOAA) publication titled *Storm Data and Unusual Weather Phenomena*, four to six inches of rain fell over a two-hour period in South Tulsa accompanied by high winds³—causing damage to dozens of buildings. The impact of the storm was felt the most in the Joe Creek watershed with Little Joe Creek overtopping its banks.

Numerous repetitive loss properties in the City of Tulsa list the May 1984 storm as their most recent flood insurance claim. The creeks that were the most heavily impacted were Mingo Creek, Bigheart Creek, Harlow Creek, Flatrock Creek, Dirty Butter Creek, Coal Creek, Little Joe Creek, and Haikey Creek. A slow-moving storm caused approximately six to fifteen inches of rain to fall over an eight-hour period, occurring primarily overnight. The largest rainfall totals occurred in the Mingo Creek watershed⁴.

The 1984 storm was severe, causing 14 fatalities and injuries to hundreds of people. The impacts on infrastructure were significant, with more than 5,000 buildings affected and total losses estimated at approximately \$180 million⁵ (about \$575 million in 2026 dollars). Following the event, President Ronald Reagan issued a federal disaster declaration.

After the 1984 flood, the City created a Flood Hazard Mitigation Team to guide recovery and long-term mitigation efforts. The City has since worked to acquire flood-prone properties, implement major flood control projects, and develop basin-wide master drainage plans.

The City's ongoing investment in mitigating flood risk has resulted in a comprehensive floodplain management program. At the turn of the century, FEMA classified Tulsa as first in the nation for its floodplain management program, leading to the lowest flood insurance premiums for residents in the US. The City has continued to improve their program, joining the NFIP's Community Rating System (CRS) in 1991. As a result, Tulsa has been awarded Class I, which grants its residents a 45 percent discount on the cost of NFIP flood insurance for structures.

¹ <https://www.cityoftulsa.org/floodcontrol>

² United States Army Corps of Engineers, Southwestern Division, Tulsa District. *Tulsa Urban Study: Flooding Overview Report*. October 1982.

³ National Oceanic and Atmospheric Administration (NOAA), Environmental Data and Information Service, National Climatic Center. *Stormwater Data Volume 21, No.6*. Asheville, NC, June 1979.

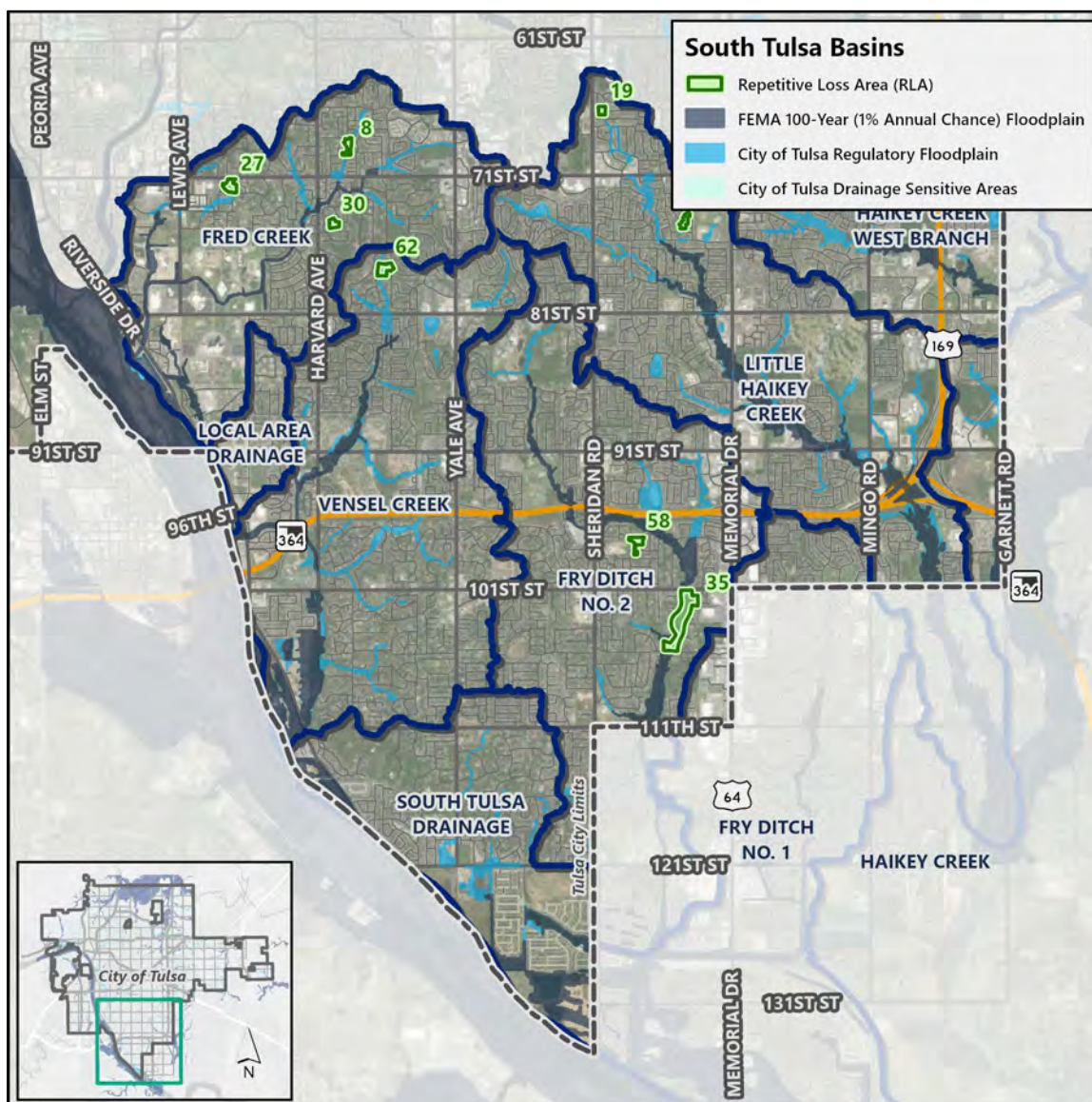
⁴ National Weather Service. *Tulsa Memorial Day Flood of May 26-27, 1984*.
https://www.weather.gov/tsa/1984may26_tulsamemorialdayflood

⁵ United States Army Corps of Engineers, Southwestern Division, Tulsa District. *Flood of May 27, 1984*. May 1985.

Location and Drainage

The South Tulsa basin group is located along the tributaries of the Arkansas River, portions of these basins are located outside of the City's southern and eastern City Limits, specifically Fry Ditch No. 1 and Little Haikey Creek. Most of this basin group is covered with residential land use. Commercial zones are located along S. Memorial Dr. and S. Mingo Rd. with smaller pockets scattered throughout. This basin group is covered by council districts 2, 7 and 8.

Figure 1: South Tulsa



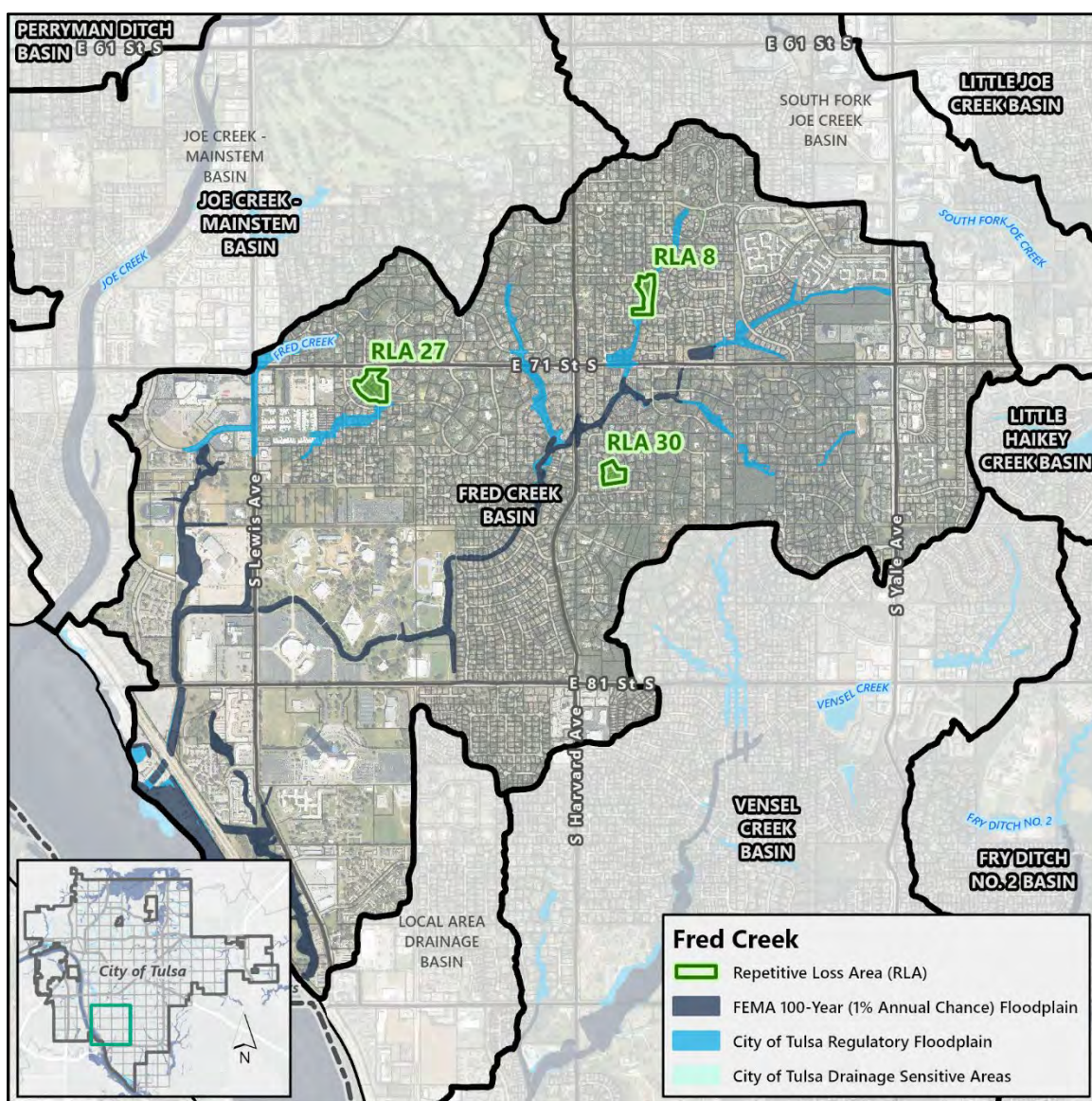
The South Tulsa Basin Group contains seven subbasins: Fred Creek, Fry Ditch No. 1, Fry Ditch No. 2, Haikey Creek West Branch, Little Haikey Creek, South Tulsa Drainage, and Vensel Creek, and seven repetitive loss areas. The creeks within the South Tulsa Basins' floodplains are located within Special Flood Hazard Area and the City Regulatory floodplain. This area

historically was subject to a mix of overbank flooding and overland flooding. There are four basins containing ten unmitigated repetitive loss properties. The unmitigated repetitive loss properties are spread over seven repetitive loss areas.

Fred Creek

Fred Creek is located in South Tulsa. This creek is a tributary to the Arkansas River; it extends approximately 3.9 miles and has a contributing drainage area of approximately 3.88 square miles. The watershed is a mix of residential and commercial land use. The commercial land use is concentrated along S. Lewis Ave and S. Yale Ave. Oral Roberts University falls within this watershed. The creek originates near E. 66th Pl. and S. Oswego Ave. and generally flows south-southwest until its confluence with the Arkansas River near the intersection of E. 81st St. S. and Riverside Dr. Fred Creek's mainstem and two of its tributaries are designated as FEMA Zone AE with Floodway, while the City of Tulsa regulatory floodplain also encompasses the mainstem and several tributaries.

Figure 2: Fred Creek Overview



The City, with support from the U.S. Army Corps of Engineers, made major improvements to Fred Creek. These improvements include channelization and erosion control projects to reduce riverine flooding following major flooding events in Tulsa. As a result, Fred Creek is mostly concrete lined up to E. 71st St. The Fred Creek basin contains one unmitigated RLA and two mitigated RLAs that are undergoing a status change based on a qualifying project.

RLA 8

Area Specific Flooding

Repetitive Loss Area 8, located in the Fred Creek watershed, was established in 2017. This Repetitive Loss Area is comprised of eight properties located near the intersection of E. 69th Pl. and S. Knoxville Pl. The properties were developed between 1967 and 1973. Three properties are located within the City Regulatory floodplain extents, one of which is a city-owned parcel that was converted to open space as part of stormwater improvements completed in the 2000s.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flooding and overbank flooding from the Fred Creek Tributary that runs along the east side of this RLA. Overbank flooding has historically been caused by an undersized storm sewer at the south end of this RLA where this tributary transitions from being conveyed by open channel to storm sewer conduits until an outfall approximately 0.25 miles downstream at S. 71st St. The original storm sewer system was developed around the time of the neighborhood and was not adequately sized to convey the flow along the tributary, allowing for backup and eventually overtopping and flooding of the structures in this RLA. The original outfall of this system was just south of 69th Pl. where flooding has also been reported.

This area was evaluated as a problem area in the 1989 Fred Creek Master Drainage Study. The recommended improvements to the storm sewer were carried out in the late 1990s and early 2000s. These improvements increased the capacity of the storm sewer to allow for the 100-year flow. Structures took on flooding in 2000, and street flooding occurred in 2005. Both events were prior to the improvement of the storm sewer. No NFIP claims have been made since the improvements.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

In 1990, the City purchased and removed the most frequently and heavily damaged Repetitive Loss Property in this RLA, converting it to open space. As recommended by the Fred Creek MDP, the undersized storm sewer system (2- 42-inch RCPs to 2-54-inch RCPs) was replaced in 2007 with triple 5-foot by 5-foot RCBs. This RCB group runs parallel to the downstream existing 54-inch RCP. The system was designed to contain the 100-year event and relieve flooding within this area. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

Figure 3: RLA 8



Claims Data

FLOOD INSURANCE DATA There is one active repetitive loss property in this RLA. Three properties in the RLA have carried flood insurance and made eleven damage claims to the NFIP, nine of which were paid, totaling \$51,664. The last claim for this RLA was filed in 1986. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the repetitive loss property nor specific claim data are detailed in this plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Fred Creek Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0358M, May 1, 2019
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, November 2024
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Fred Creek master Drainage Study, August 1988
- Repetitive Loss Area #8, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns.

During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings. One City-owned parcel that is maintained as open space is included below.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Residential	Slab	1973	Good
Property 2	Residential	Slab	1973	Very Good
Property 3	Residential	Slab	1967	Good
Property 4	Residential	Slab	1973	Good
Property 5	Residential	Slab	1971	Good
Property 6	Residential	Slab	1969	Good
Property 7	Commercial			
Property 8	Residential	Slab	1969	Good

CONCLUSIONS Based on flood data, the Fred Creek Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage have been overland flow from surrounding properties before capture in the storm sewer system. All structures in the RLA are outside of the FEMA SFHA, one is included in the City's regulatory floodplain. This area was analyzed during the MDP update and suggested improving the storm sewer system. This recommendation has been completed. The updated system was designed to contain the 100-year event. Since the MDP has not been updated since these storm sewer improvements, the City's regulatory floodplain does not account for them. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

RLA 8



Google Earth

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6.88 ft

RLA 27

Area Specific Flooding

Repetitive Loss Area 27, located in the Fred Creek watershed, was established in 2017. This Repetitive Loss Area is comprised of eleven properties located near the intersection of E. 71st St. and S. Birmingham Pl. The properties were developed between 1974 and 1980, located just north of the City regulatory floodplain extents.

Drainage conditions in this RLA indicate that flooding is likely caused by localized runoff associated with neighborhood development, prior to improvements to the storm sewer along 71st St. completed in the 1990s. An overland flow path carries water between the residences in the RLA to the pipe inlets along S. 71st Pl. The storm sewer south of 71st St. was developed in 1973. Since the improvements along 71st St., runoff from the roadway is likely entirely captured and conveyed by the improved storm sewer system, alleviating flooding in this area. One claim was filed in 1997, after the construction of the stormwater improvements, but before the completion of the accompanying stormwater detention facility. This area is not evaluated as a problem area in the 1989 Fred Creek Master Drainage Study.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

In the 1970s and 1980s, the City, with support from the U.S. Army Corps of Engineers, made major improvements to Joe and Fred creeks and their tributaries to reduce riverine flooding following major flood events in Tulsa. However, those channel and creek improvements did not fully address flooding in RLA 27. In the 1990s and early 2000s, the City expanded the storm sewer system along E. 71st St. and constructed an upstream detention pond, which reduced storm sewer overflow and appears to have mitigated flooding in this RLA. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

Figure 4: RLA 27



Claims Data

FLOOD INSURANCE DATA There is one repetitive loss property in this RLA. Three properties in the RLA have carried flood insurance and made nine damage claims to the NFIP, eight of which were paid, totaling \$21,739. The last claim for this RLA was filed in 1997. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the repetitive loss property nor specific claim data are detailed in this plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Fred Creek Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0362L, October 16, 2012
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, November 2024
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Fred Creek master Drainage Study, August 1988
- Repetitive Loss Area #27, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns.

During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Residential	Slab	1977	Avg +
Property 2	Residential	Slab	1977	Avg +
Property 3	Residential	Slab	1976	Avg +
Property 4	Residential	Slab	1976	Avg +
Property 5	Residential	Slab	1976	Avg +
Property 6	Residential	Slab	1980	Avg +
Property 7	Residential	Slab	1976	Avg +
Property 8	Residential	Slab	1976	Avg +
Property 9	Residential	Slab	1974	Avg +
Property 10	Residential	Slab	1975	Avg +
Property 11	Residential	Slab	1975	Avg +

CONCLUSIONS Based on flood data, the Fred Creek Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage have been overland flow and storm sewer backup. All structures in the RLA are outside of the FEMA SFHA and City's regulatory floodplain. This area was not analyzed during the MDP. The City's efforts to expand the storm sewer system along 71st St. in the 1990s and early 2000s likely mitigated this RLA. As the nature of any continued flooding would likely be localized, the property owner can undertake individual mitigation actions as described in the Mitigation Measures section. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

RLA 27



Google Earth

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6.66 ft

RLA 30

Area Specific Flooding

Repetitive Loss Area 30, located in the Fred Creek watershed, was established in 2017. This Repetitive Loss Area is comprised of five properties located at the intersection of E. 75th St. and S. Indianapolis Ave. The properties were developed between 1942 and 1969, located along a hillside between two storm sewer system inlets, outside of the floodplain.

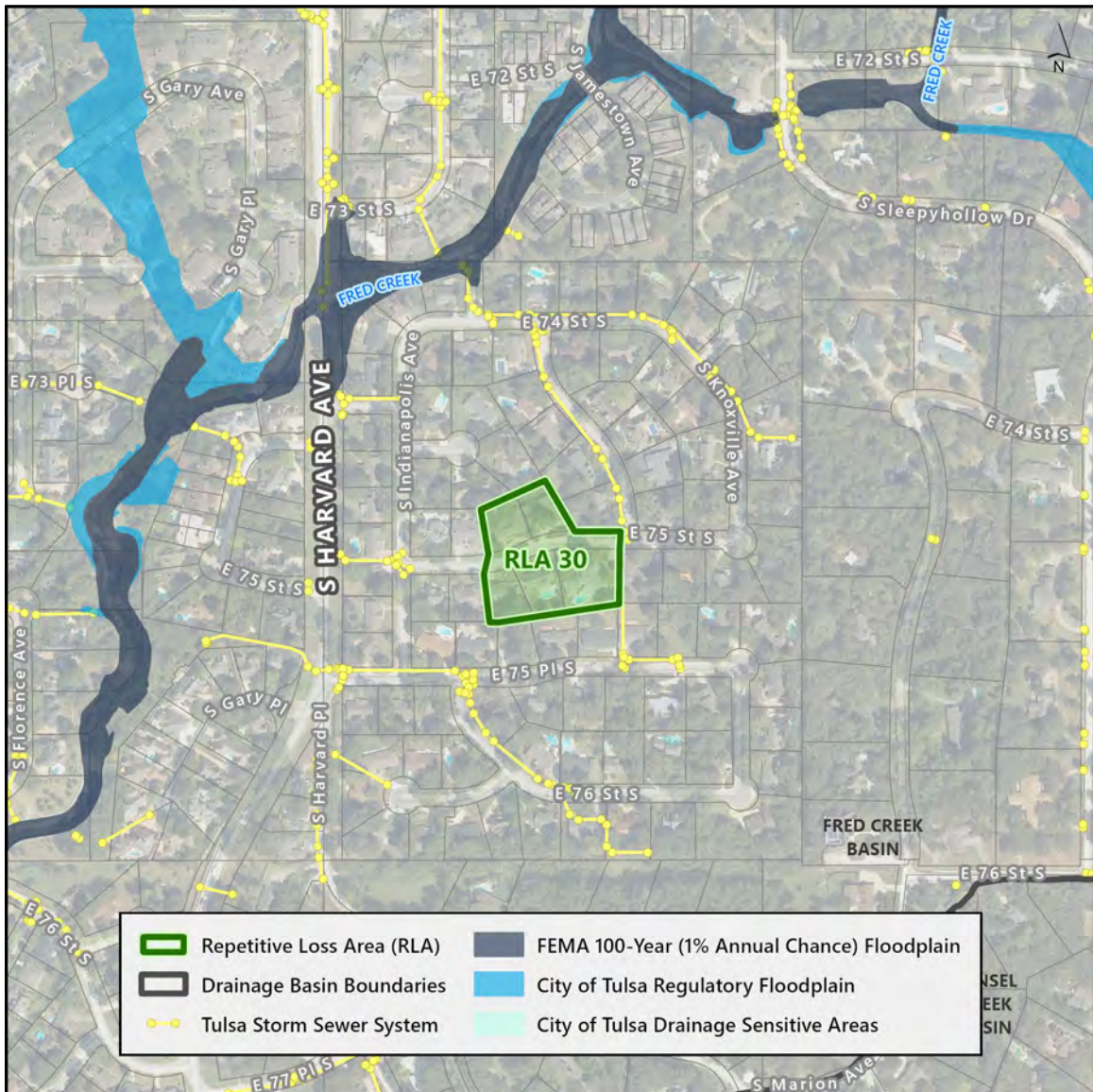
Drainage conditions in this RLA indicate that flooding is likely caused by localized runoff associated with neighborhood development. An overland flow path carries water through the backyards of residences in the RLA from properties to the south and east. The storm sewer was developed in 1966 within inlets along the roadways. However, because there are no inlets within these backyards, runoff is not captured before it reaches the affected properties. This area is not evaluated as a problem area in the 1989 Fred Creek Master Drainage Study.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

There have been no improvements made to this RLA.

Figure 5: RLA 30



Claims Data

FLOOD INSURANCE DATA There is one repetitive loss property in this RLA. One property in the RLA has carried flood insurance and made two damage claims to the NFIP, both of which were paid, totaling \$5,022. The last claim for this RLA was filed in 1986. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the repetitive loss property nor specific claim data are detailed in this plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Fred Creek Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0362L and 40143C0366L, October 16, 2012
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, November 2024
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Fred Creek master Drainage Study, August 1988
- Repetitive Loss Area #30, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns.

During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Residential	Slab	1969	Good
Property 2	Residential	Slab	1969	Good
Property 3	Residential	Slab	1942	Good
Property 4	Residential	Slab	1968	Good
Property 5	Residential	Conventional	1969	Good

CONCLUSIONS Based on flood data, the Fred Creek Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage have been overland flow from surrounding properties before its capture in the storm sewer system. All structures in the RLA are outside of the FEMA SFHA and City's regulatory floodplain. This area was not analyzed during the MDP. As the nature of the flooding is localized, the property owner can undertake individual mitigation actions as described in the Mitigation Measures section.

RLA 30



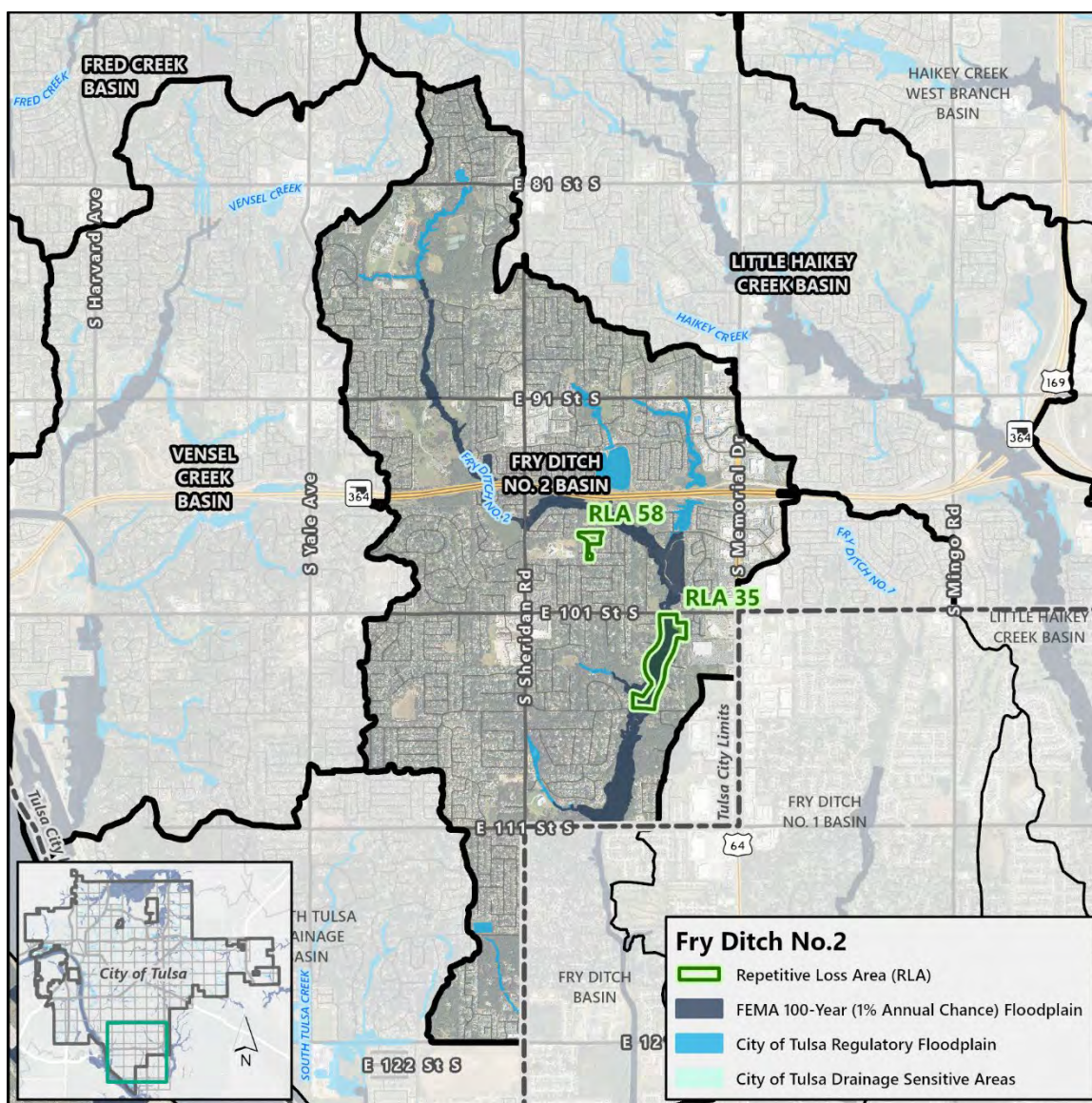
Google Earth

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Fry Ditch No. 2

Fry Ditch No. 2 is located in South Tulsa. This creek is a tributary of the Arkansas River; it extends approximately 6.8 miles and has a contributing drainage area of 5.9 square miles. The watershed is covered with mostly residential land use and open space along the creek. Additionally, there are three primary commercial zones located along S. Memorial Dr. between E. 91st and E. 101st St S, at the intersection of E. 91st St. S. and S. Sheridan Rd. and at the intersection of E. 101st St. S. and S. Sheridan Rd.

Figure 6: Fry Ditch No. 2 Overview



The creek originates near E. 81st St. S. along the Holland Hall property and generally flows south to its confluence with Fry Ditch No. 1 to form Fry Creek near the intersection of E. 127th St. S. and S. Sheridan Rd. Fry Creek then joins the Arkansas River just 0.87 miles south, near E.

135th St. S. Fry Ditch No. 2's mainstem is designated as FEMA Zone AE with Floodway, while the City of Tulsa regulatory floodplain also encompasses the mainstem and several tributaries. The Fry Ditch No. 2 basin contains two unmitigated RLAs.

RLA 35

Area Specific Flooding

Repetitive Loss Area 35, located in Fry Ditch No. 2 watershed, was established in 2017. This Repetitive Loss Area is comprised of eighteen structures on twenty-six lots located directly east of the intersection of E. 101st St. and S. 76th E. Ave. The properties are situated on either side of Fry Ditch No. 2. The majority of the properties were developed between 1963 and 1979, though one was developed in 1998 and another in 2002. The land is sloped inward toward the creek. Twenty-four of the properties are located in the FEMA SFHA and the City's regulatory floodplain. One structure is within the FEMA floodway. This 2026 update includes two additional properties from the 2017 report. These were added after additional analysis of the City's flooded structures and citizen complaints.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flooding and overbank flooding from Fry Ditch No. 2 which runs through the center of this RLA. Local drainage is conveyed by ditches along the roadways. The homes along the creek are located at an elevation that is lower than the roadway grade, therefore when the roadway ditches reach capacity the flood water would overtop toward the properties along the creek before reaching Fry Ditch No. 2's main channel, threatening the slab-on-grade structures.

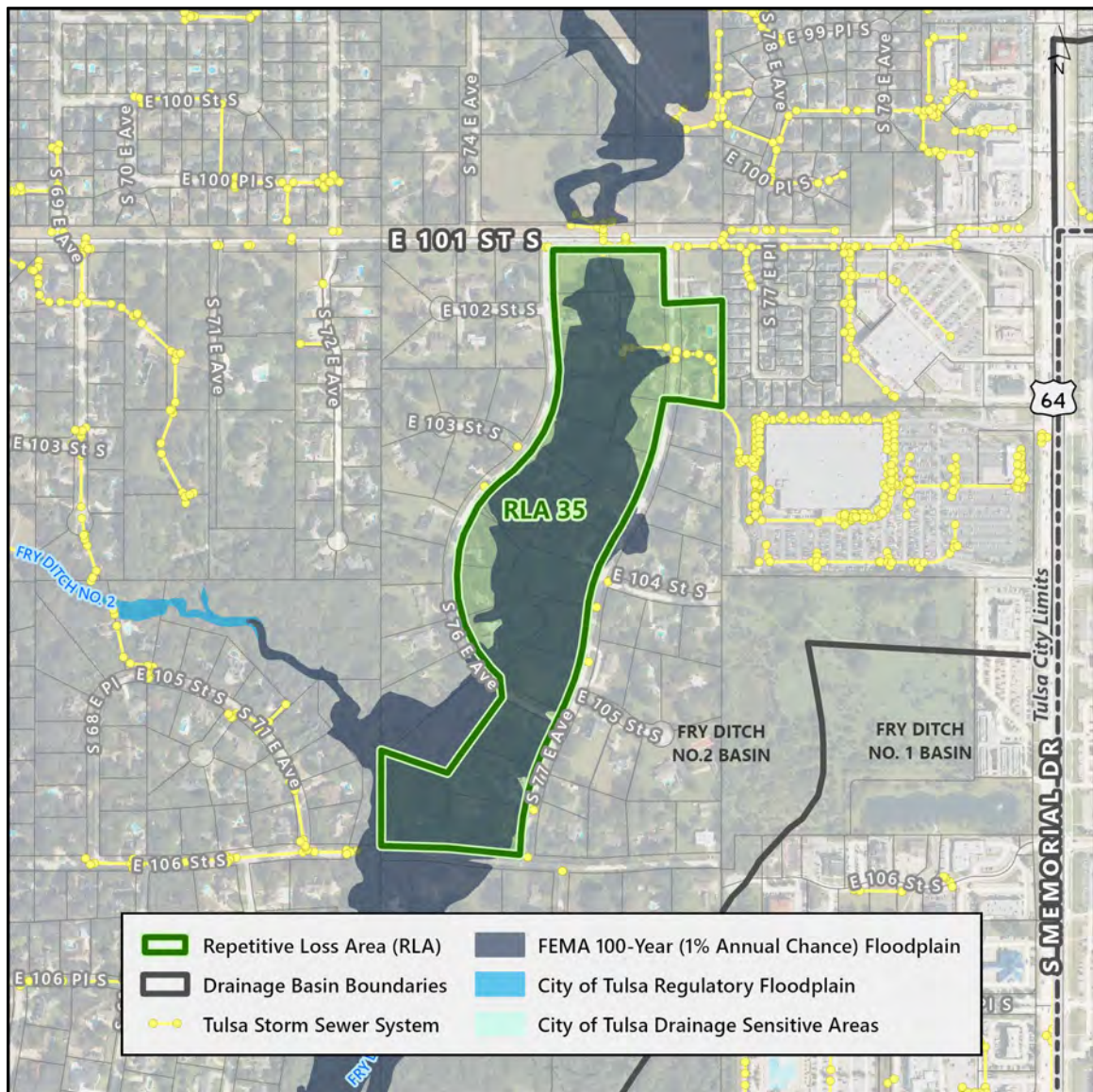
This area was evaluated in both the 1995 and 2018 Fry Ditch No. 2 Master Drainage Plan updates. The plan recommended installing detention upstream, increased culvert capacity to improve conveyance at S. 76th E. Ave., erosion control along the channel, and acquisition and clearing of homes remaining in this RLA along the channel as the best option for this reach of the creek. Several of the recommendations from the MDP have been implemented though they have not removed all of the properties within the floodplain with one property remaining in the floodway.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

Improvements made to the Fry Ditch No. 2 drainage were done in accordance with the Fry No. 2 Master Drainage Plan. The plan recommended installing detention upstream, increased culvert capacity to improve conveyance at S. 76th E. Ave., erosion control along the channel, and acquisition and clearing of homes remaining in this RLA along the channel as the best option for this reach of the creek. Upstream detention, acquisition of seven properties, bridge improvements with energy dissipation and erosion control along the creek have been completed. Eleven structures remain in the SFHA, and one remains in the floodway. Although no additional claims have been filed since these improvements were completed, there have been continued complaints of erosion along the creek and overland flow within the area.

Figure 7: RLA 35



Claims Data

FLOOD INSURANCE DATA There are two repetitive loss properties in this RLA. Eight properties in the RLA have carried flood insurance and made twenty-two damage claims to the NFIP, all but one were paid totaling \$125,063. The last claim for this RLA was filed in 2015. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the Repetitive Loss property nor specific claim data are detailed in this Plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Fry Ditch No. 2 Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0369L, October 16, 2012
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, November 2024
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Fry Ditch No. 2 Master Drainage Plan, Final Report, February 15, 1995
- Fry Ditch No. 2 Master Drainage Plan, Meshek & Associates, 2018
- Repetitive Loss Area #35, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns. During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Vacant			
Property 2	Residential	Slab	1996	Good
Property 3	Residential	Slab	1967	Good
Property 4	Vacant			
Property 5	Residential	Slab	1972	Good
Property 6	Vacant			
Property 7	Residential	Slab	1964	Good
Property 8	Residential	Slab	1967	Good
Property 9	Residential	Slab	1970	Good
Property 10	Residential	Slab	1982	Good
Property 11	Residential	Slab	1967	Avg
Property 12	Residential	Slab	1966	Good
Property 13	Residential	Slab	1979	Avg
Property 14	Residential	Slab	1970	Good
Property 15	Vacant			
Property 16	Residential	Slab	1972	Good
Property 17	Residential	Slab	1973	Good

Property 18	Vacant			
Property 19	Vacant			
Property 20	Vacant			
Property 21	Residential	Slab	2002	Good +
Property 22	Residential	Slab	1970	Good
Property 23	Residential	Slab	1971	Good
Property 24	Vacant			
Property 25	Residential	Slab	1965	Good
Property 26	Residential	Slab	1998	Avg +

CONCLUSIONS Based on flood data, the Fry Ditch No. 2 Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage have been overbank flooding along Fry Ditch No. 2 and overland flow. Many of the recommendations from the MDP have been implemented but the efforts have not removed all of the properties within the floodplain, with one property remaining in the floodway. Acquisition, flood proofing, and improved conveyance at E. 76th St. remain to be completed. To manage localized flooding issues, individual mitigation actions as described in the Mitigation Measures section of this report can be taken.

RLA 35



RLA 58

Area Specific Flooding

Repetitive Loss Area 58, located in Fry Ditch No. 2 watershed, was established in 2017. This Repetitive Loss Area is comprised of thirteen structures located directly along two cul-de-sacs near the intersection of S. 69th E. Ave and E. 98th St. S. The majority of the properties were developed between 1984 and 1992. The properties are all located outside of the FEMA SFHA and City regulatory floodplain. During this 2026 update, seven properties were added to the RLA after reviewing the City's flooded structures and citizen complaints.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flow and inadequate drainage paths. The terrain on which these properties are located generally slopes to the northeast. When there is storm sewer backup flooding would occur along the properties as flood water makes its way to the creek. This area was not evaluated in the Fry Ditch No. 2 Master Drainage Plan.

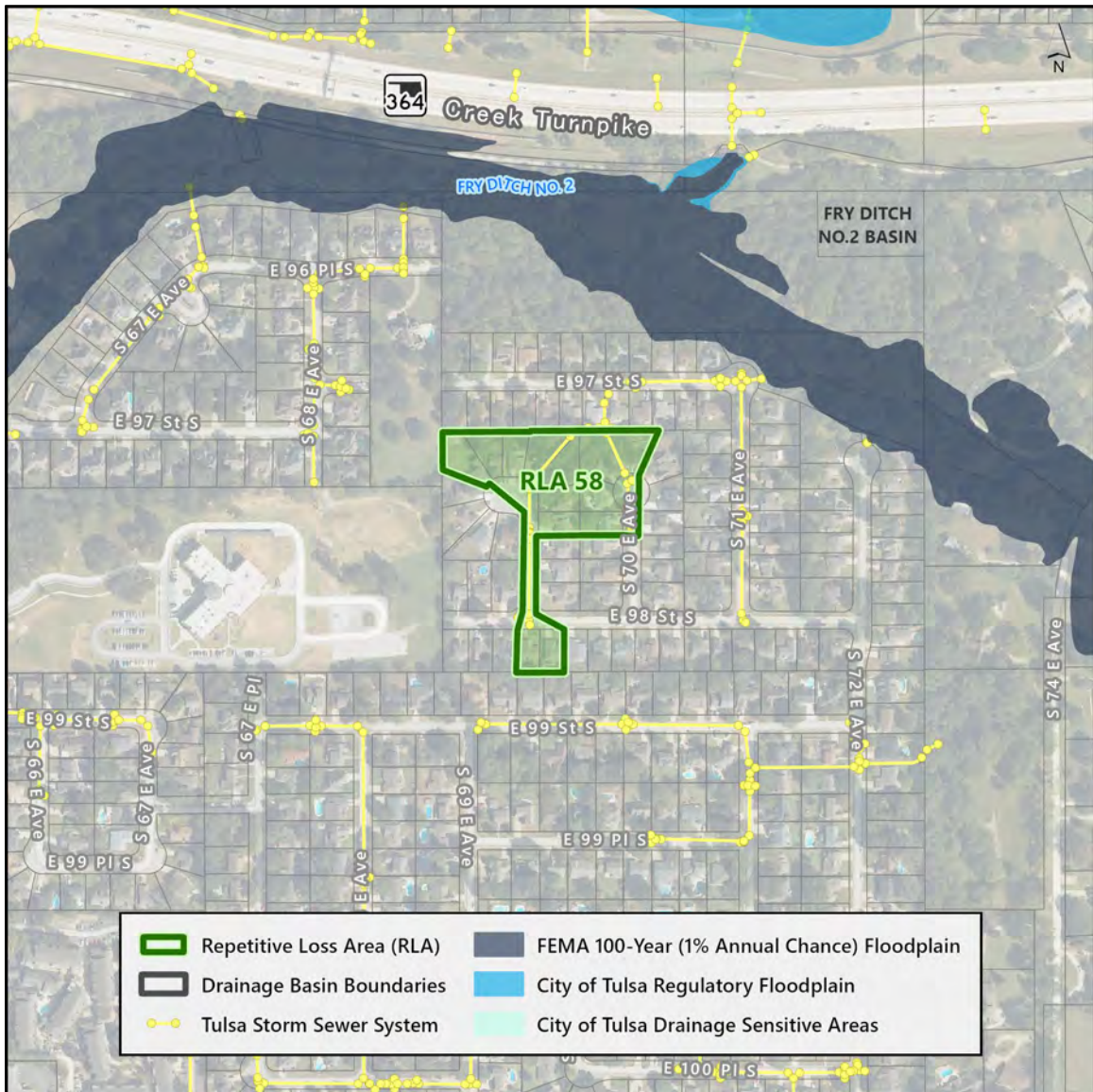
Most of the flooding complaints in this area were due to development of a horse stable just west of the RLA which caused increased runoff that burdened the neighborhood. In 2020 a neighbor reported flooding in their yard which was likely a localized flooding incident. The western property was redeveloped in 2023 and included regrading and stormwater detention. No NFIP flood claims have been made since 2008.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

The flooding complaints and claims within this RLA are all from the summer of 2008. The complaints made to the City suggest that overflow from a property being developed just west of the RLA was running off and causing flooding to the properties along S. 69th E. Ave. The property was redeveloped in 2023. No flooding complaints have been made since 2020. If flooding persists it is likely due to local overland flow.

Figure 8: RLA 58



Claims Data

FLOOD INSURANCE DATA There is one repetitive loss property in this RLA. One property in the RLA has carried flood insurance and two damage claims to the NFIP, both of which were paid total \$8,447. The last claim for this RLA was filed in 2008. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the Repetitive Loss property nor specific claim data are detailed in this Plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Fry Ditch No. 2 Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0369L, October 16, 2012
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, November 2024
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Fry Ditch No. 2 Master Drainage Plan, Final Report, February 15, 1995
- Fry Ditch No. 2 Master Drainage Plan, Meshek & Associates, 2018
- Repetitive Loss Area #58, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns. During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Residential	Slab	1991	Good
Property 2	Residential	Slab	1985	Avg +
Property 3	Residential	Slab	1989	Good
Property 4	Residential	Slab	1985	Good
Property 5	Residential	Slab	1985	Good
Property 6	Residential	Slab	1984	Good
Property 7	Residential	Slab	1985	Good
Property 8	Residential	Slab	1985	Good
Property 9	Residential	Crawl Space	1985	Good
Property 10	Residential	Slab	1988	Good
Property 11	Residential	Slab	1992	Good
Property 12	Residential	Slab	1985	Good
Property 13	Residential	Slab	1990	Good

CONCLUSIONS Based on flood data, the Fry Ditch No. 2 Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage were primarily from the development of a property just west of this RLA, which caused additional runoff to enter the area. The RLA also has low-lying properties and overland drainage paths through these

properties where water will flow downstream to Fry Ditch No. 2. The overflow from the adjacent property has been mitigated through redevelopment in 2023. If flooding has continued, it is likely due to these overland flow paths through backyards in the area. These flooding conditions can be mitigated by individual property owners. See the Mitigation Actions section for recommendations. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

RLA 58



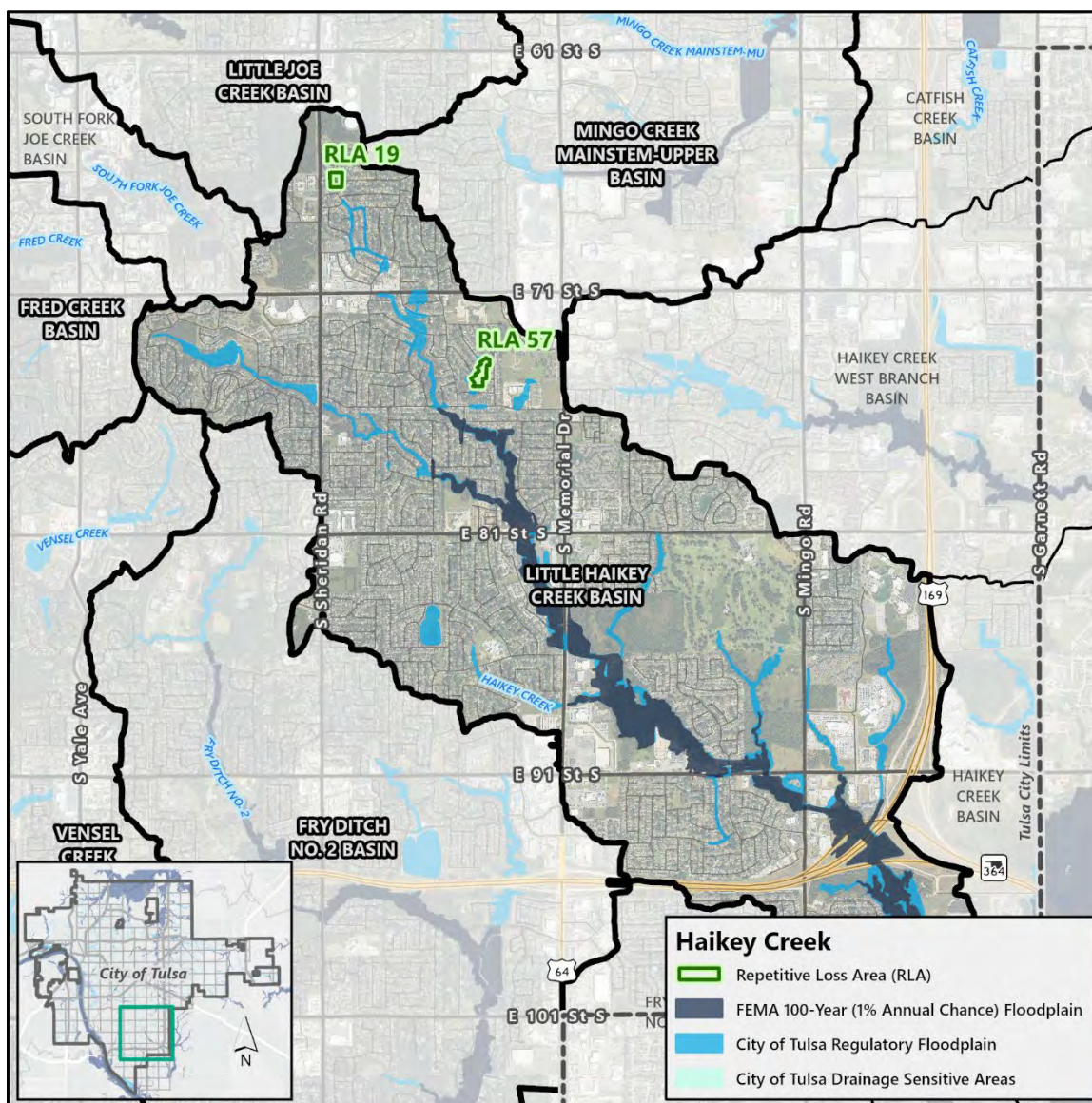
Google Earth

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Little Haikey Creek

Little Haikey Creek is located in South Tulsa. This creek is a tributary of Haikey Creek; it extends approximately 6 miles and has a contributing drainage area of 6.32 square miles. The watershed is covered with mostly residential and commercial land use with open space along the creek. The creek originates just south of a commercial district at E. 71st St. and S. 70th E. Ave. and generally flows south-southeast until its confluence with Haikey Creek at Haikey Park near the intersection of E. 111th St. S. and S. Garnett Rd. Little Haikey Creek and one of its tributaries are designated as FEMA Zone AE with Floodway, while the City of Tulsa regulatory floodplain also encompasses the mainstem and several tributaries. The Little Haikey Creek basin contains one unmitigated RLA and one mitigated RLA that is undergoing a status change based on a qualifying project.

Figure 9: Little Haikey Creek Overview



RLA 19

Area Specific Flooding

Repetitive Loss Area 19, located in Little Haikey Creek watershed, was established in 2017. This Repetitive Loss Area is comprised of five structures located directly east of the intersection of E. 69th St. and S. Sheridan Ave. The properties were developed between 1966 and 1968 and are located outside of the floodplain.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flow and storm sewer backup as a result of development upstream of these properties. The properties are situated along the low ground that once was the open channel of Little Haikey Creek. The land is sloped inward from the east and west and down to the south, along the historic creek bed. Since the development of this area, the flow along this tributary is primarily conveyed by storm sewer between the homes of the residential properties. There is a stormwater detention facility located directly north of the homes that was determined to have a 100-year capacity when constructed in 1978. Claims were filed after the construction of this facility but only in 1979 and 1984 which were greater than the 100-year event. This area was not evaluated in the Haikey Creek Master Drainage Plan.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

There have been no improvements made to this RLA. The repetitive flooding in this RLA has been due to storms that were greater than the 100-year event and therefore larger than the stormwater detention facilities installed upstream. This RLA is protected from flooding in the 100-year event. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

Figure 10: RLA 19



Claims Data

FLOOD INSURANCE DATA There are two repetitive loss properties in this RLA. Two properties in the RLA have carried flood insurance and made four damage claims to the NFIP, all of which were paid, totaling \$23,779. The last claim for this RLA was filed in 1984. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the Repetitive Loss property nor specific claim data are detailed in this Plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Haikey Creek Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0359M, October 16, 2012
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, June 2026
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Haikey Creek Basin Drainage Study, Final Report, Wright Water Engineers, October 1989.
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Repetitive Loss Area #19, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns. During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Residential	Slab	1967	Avg +
Property 2	Residential	Slab	1968	Avg +
Property 3	Residential	Slab	1968	Avg +
Property 4	Residential	Slab	1966	Avg +
Property 5	Residential	Slab	1966	Avg +

CONCLUSIONS Based on flood data, the Haikey Creek Master Drainage Plan, site surveys and feedback from residents and homeowners, the cause of damage was inadequate detention and storm sewer capacity upstream of the properties during the 1979 and 1984 floods leading to excess runoff flooding the slab-on-grade properties on the low-lying terrain. This RLA is protected from flooding in the 100-year event. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

RLA 19



Google Earth

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7.63 ft



RLA 57

Area Specific Flooding

Repetitive Loss Area 57, located in Little Haikey Creek watershed, was established in 2017. This Repetitive Loss Area is comprised of ten structures located at the intersection of E. 73rd St. and S. 77th E. Ave. The properties were developed between 1970 and 1981 and are located in the City regulatory floodplain along the former stream bed of a tributary of Little Haikey Creek. During this 2026 review, one property was added to the RLA after review of the City's flooded structures and citizen complaints.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flooding and storm sewer backup. The land is sloped inward from the east and west and down to the south in the manner of the previous creek bed. Since the development of this area, the flow along this tributary is primarily conveyed by storm sewer through the back yards of the residential properties. Although the inlets for the storm sewer are located in sumps, the sumps overtop during the 100-year event and flood water flows south across the properties in the RLA.

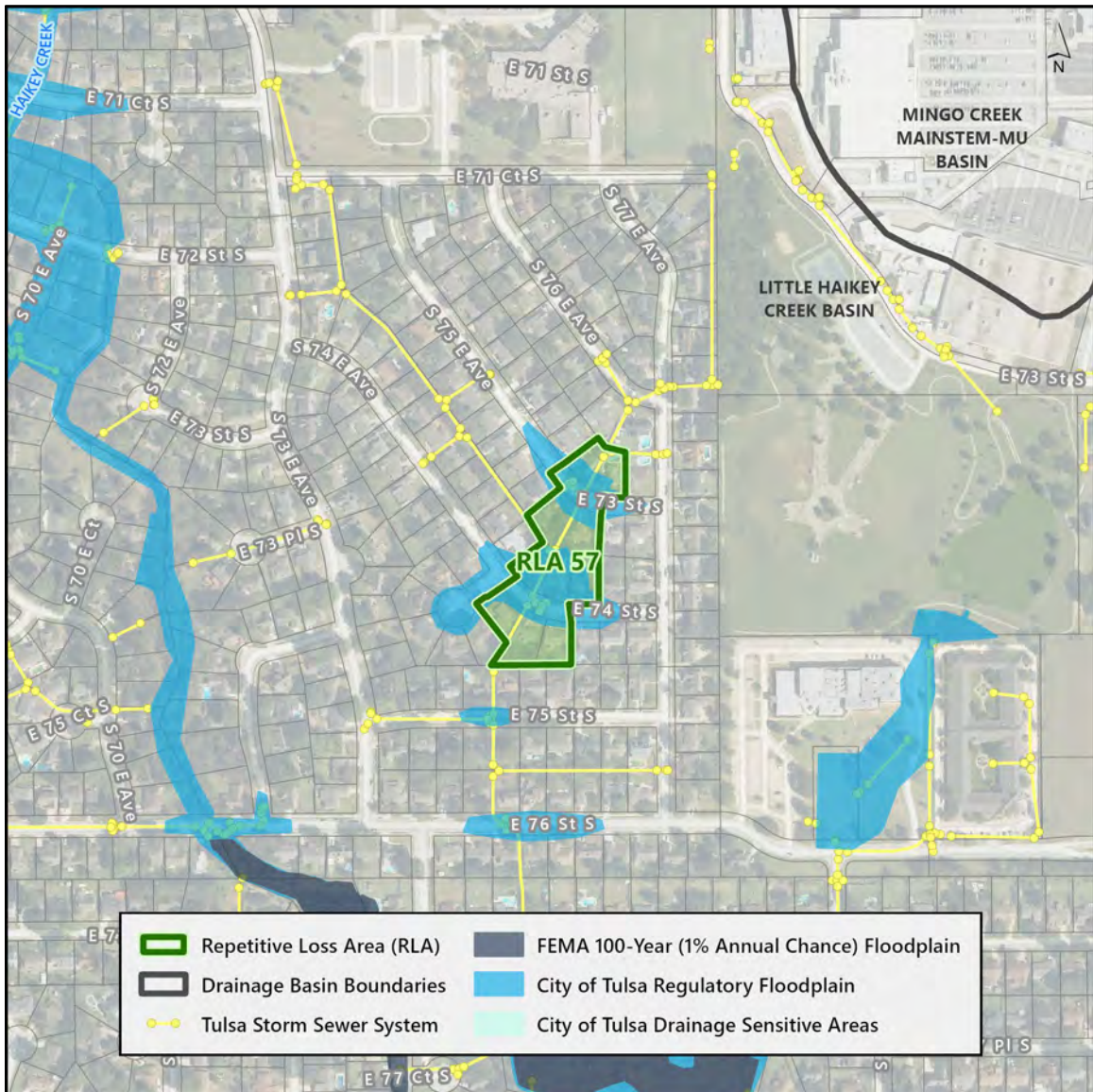
This area was evaluated in both the 1989 and 2025 Haikey Creek Master Drainage Plan updates. The 2025 revision is still ongoing at the time of this report. The 1989 report cites that the storm sewer system in the neighborhood provides inadequate conveyance for the 100-year event, during the 2025 updates it was noted that the storm sewer system had approximately a 2-year capacity. Since 2010 there have been eight complaints of street, yard, and structure flooding within the area.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

There have been no improvements made to this RLA.

Figure 11: RLA 57



Claims Data

FLOOD INSURANCE DATA There is one repetitive loss property in this RLA. Three properties in the RLA have carried flood insurance and made six damage claims to the NFIP, five of which were paid, totaling \$19,187. The last claim for this RLA was filed in 2010. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the Repetitive Loss property nor specific claim data are detailed in this Plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Haikey Creek Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0367L, October 16, 2012
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, June 2026
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Haikey Creek Basin Drainage Study, Final Report, Wright Water Engineers, October 1989.
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Repetitive Loss Area #57, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns. During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Residential	Slab	1981	Avg +
Property 2	Residential	Slab	1973	Avg +
Property 3	Residential	Slab	1973	Avg +
Property 4	Residential	Slab	1972	Avg +
Property 5	Residential	Slab	1972	Avg +
Property 6	Residential	Slab	1972	Avg +
Property 7	Residential	Slab	1972	Avg +
Property 8	Residential	Slab	1970	Avg +
Property 9	Residential	Slab	1973	Avg +
Property 10	Residential	Slab	1972	Avg +

CONCLUSIONS Based on flood data, the Haikey Creek Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage were primarily overland flow along the swale of the former channel, inadequate storm sewers, and the slab-on-grade construction of the homes in a floodplain. The 2025 and 1989 MDPs recommend acquisition and storm sewer diversion as the best options for flood mitigation in this area.

RLA 57



Google Earth

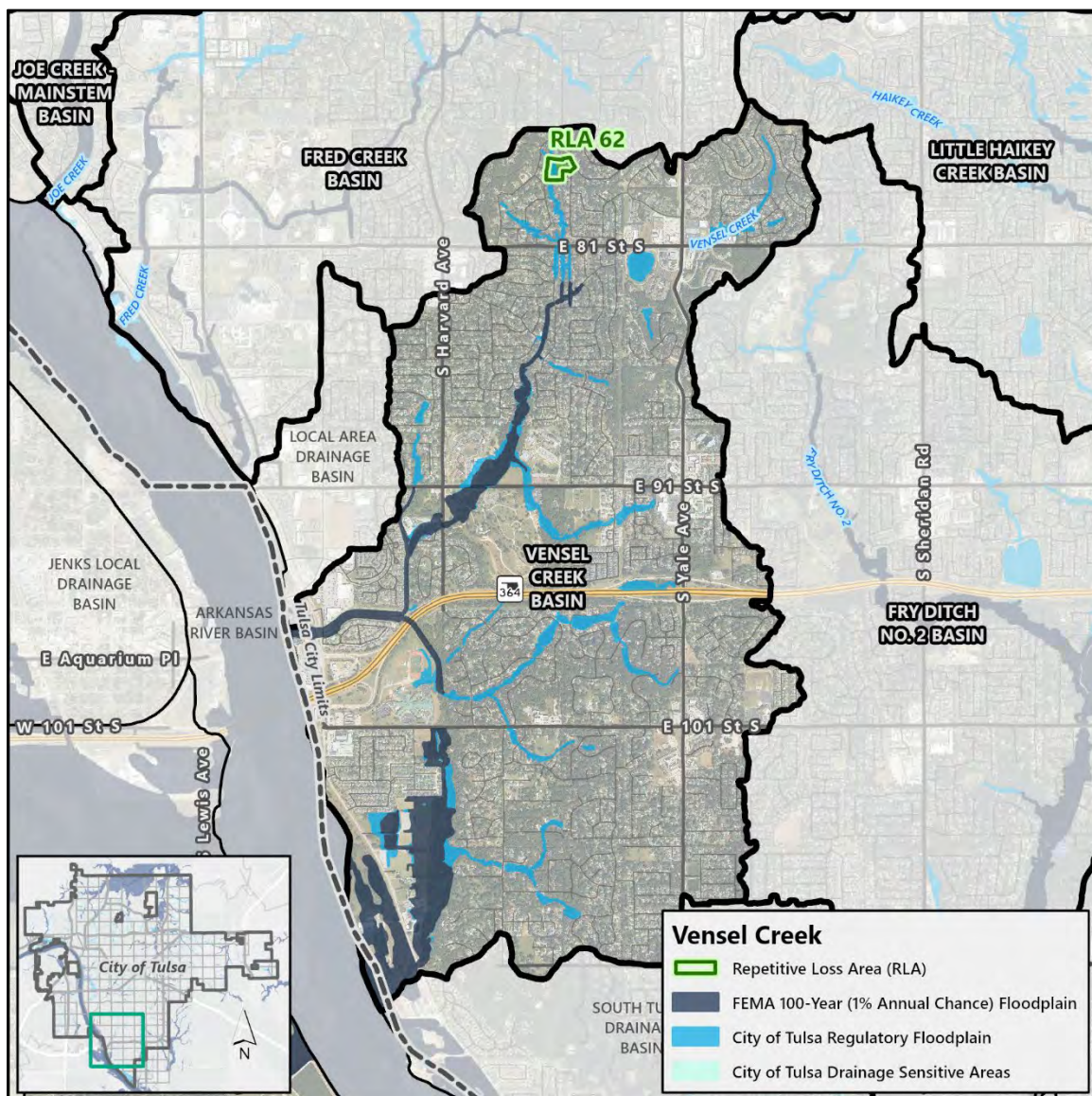
© 2026 Google

6.84 ft

Vensel Creek

Vensel Creek is located in South Tulsa. This creek is a tributary of the Arkansas River; it extends approximately 3.42 miles and has a contributing drainage area of 5.28 square miles. The watershed is primarily residential with two commercial districts; one located at E. 81st St. and S. Yale Ave., the other is located near the creek's confluence with the Arkansas River at E. 96th St. and Riverside Dr. There is a large swath of open space that the creek flows through along Jenks East Elementary Campus and an adjacent cemetery. The creek originates near city limits at E. 76th St. and S. Fulton Ave. and generally flows south-southwest to its confluence with the Arkansas River.

Figure 12: Vensel Creek Overview



Vensel Creek and two of its tributaries, Grump Channel and Tributary H, are designated as FEMA Zone AE with Floodway, while the City of Tulsa regulatory floodplain also encompasses the mainstem and several tributaries. The Vensel Creek basin contains one unmitigated RLA.

RLA 62

Area Specific Flooding

Repetitive Loss Area 62, located in Vensel Creek watershed, was established in 2017. This Repetitive Loss Area is comprised of six structures located at the intersection of E. 77th St. and S. Quebec Ave. The properties were developed between 1975 and 1979 and are situated on either side of Vensel Creek. Two structures in the area are in the City regulatory floodplain.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flooding and overbank flooding from Vensel Creek which runs through the center of this RLA. Local drainage is conveyed by storm sewer that outfalls to the creek along E. 77th St. The western properties are downhill from those along S. Quebec Ave. therefore when the storm sewer is overwhelmed, they're at risk of taking on runoff from the storm sewer overflow. Vensel Creek is a natural channel with some riprap for erosion control through this reach, its flow is not contained in the channel through this stretch, and it overtops E. 77th St.

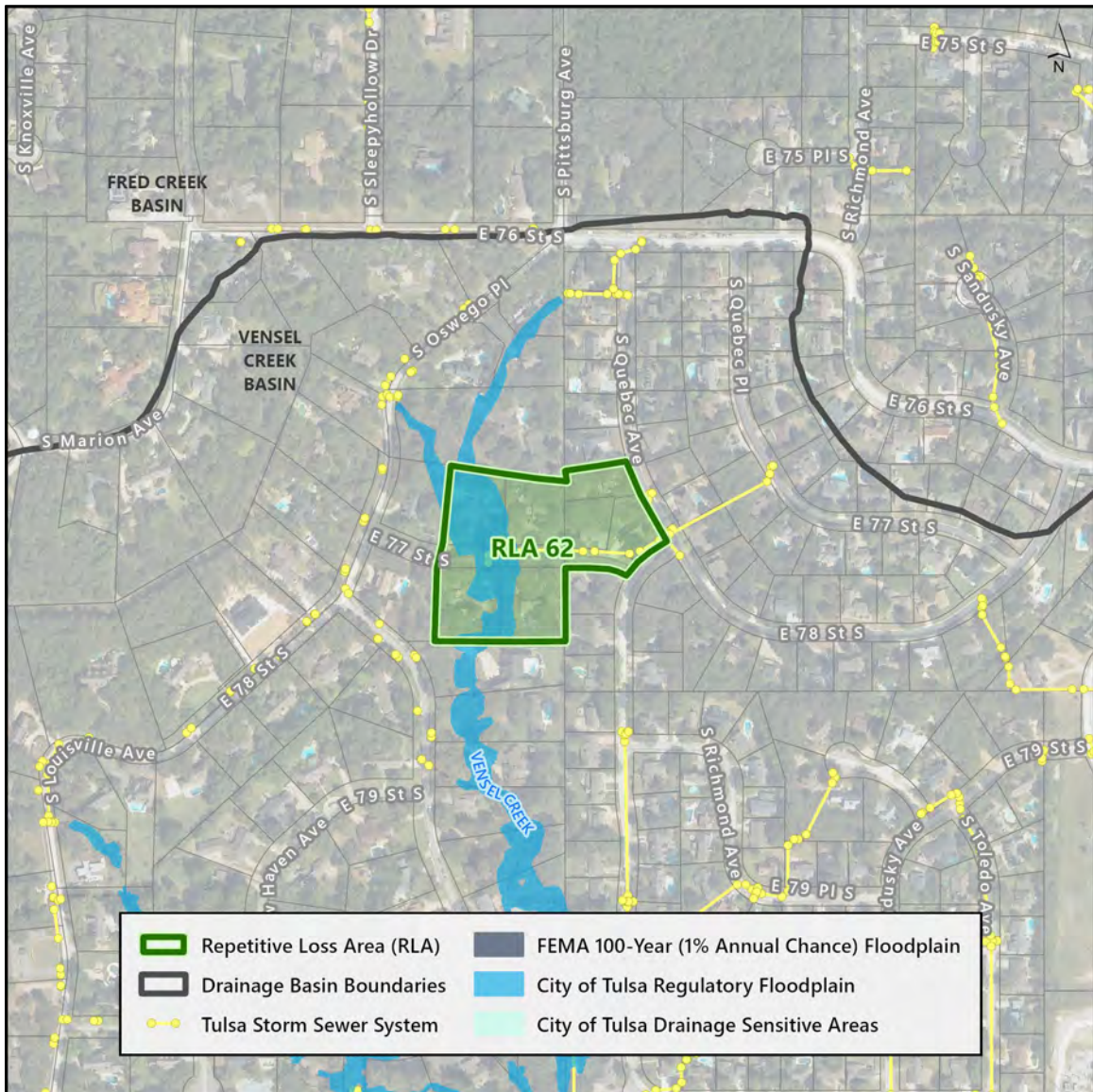
This RLA was addressed in the Vensel Creek MDP. In the 2024 update, this RLA is located in Problem Area 5. The study confirms inadequate channel storage causing overtopping of its banks, but the floodplain extents stop on the south side of E. 77th Pl due to 40-acre mapping limits. The most recent flooding complaint was in 2016.

The general location of this RLA is shown on the map below. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers and inlets system.

Improvements

Improvements to the area have been made in accordance with the 1978 and 1994 Vensel Creek Basin Master Drainage Plan Update. The improvements include enlarging the culvert under E. 77th St. and increasing the storm sewer capacity along S. Quebec Ave. These improvements reduced overbank flooding at the E. 77th St. crossing and overland flow from S. Quebec Ave. into the RLA. However, flood risk has not been fully mitigated because several structures remain in the floodplain, and damage claims have been filed since the projects were completed.

Figure 13: RLA 62



Claims Data

FLOOD INSURANCE DATA There is one repetitive loss property in this RLA. Two properties in the RLA have carried flood insurance and made six damage claims to the NFIP, five of which were paid totaling \$24,376. The last claim for this RLA was filed in 2015. Because the Privacy Act of 1974 (5 USC 522a) restricts the release of flood insurance policy and claims data to the public, neither the Repetitive Loss property nor specific claim data are detailed in this Plan.

Research And Analysis

The original analysis of this RLA was conducted in 2017 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Vensel Creek Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, visits to the RLA, interviews with homeowners and questionnaires mailed to the property owners and occupants soliciting information about prior and existing flooding issues, if any. For this 2026 review, additional claims data, updated topography, 311 citizen call logs, and a review of the City's CIP prioritization were used to update this analysis.

AGENCIES AND ORGANIZATIONS During the course of the 2017 RLA analysis and plan development, the Project Team solicited input from the City of Tulsa Stormwater Design, the Communications Department, and the Working in Neighborhoods Department (WIN), Indian Nations Council of Governments (INCOG), US Army Corps of Engineers (USACE), City of Tulsa Emergency Management, and Tulsa County Emergency Management. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the NFIP's Community Rating System (CRS). In this 2026 update, the Project Team worked with City agencies to verify the status of the repetitive loss properties.

PLANS, STUDIES AND DOCUMENTS The following City of Tulsa and FEMA documents were used in the analysis:

- FEMA Flood Map Panel: 40143C0366L, October 16, 2012
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, June 2026
- City of Tulsa Stormwater Management Plan
- Stormwater Management Criteria Manual, June 2019
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- 2024 City of Tulsa Hazard Mitigation Plan Update, Freese & Nichols, 2024
- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Vensel Creek Basin Master Drainage Plan, 1978
- Vensel Creek Basin Master Drainage Plan Update, May 1994
- Vensel Creek Master Drainage Plan, Freese & Nichols, 2024
- Repetitive Loss Area #62, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS No City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in this Repetitive Loss Area.

FIELD SURVEYS AND SITE VISITS In 2017, site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns. During this 5-year update, these areas were reviewed using GIS data and aerial imagery along with site visits.

REVIEW DRAINAGE PATTERNS The Project Team examined aerial topography maps, master drainage plans, storm sewer plans, City Customer Care Center complaints and comments, and conducted field checks to determine area drainage patterns and identify flooding problem areas. The results of the research and analysis are described in the following paragraphs and summarized in the table below.

STRUCTURES The Project Team made a number of visits to this RLA to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

STRUCTURE TYPE The structures are all residential buildings.

FOUNDATION TYPE The type of foundation was determined by field investigation and query of Tulsa County Assessor records.

CONDITION OF STRUCTURES The condition of the residences in the RLA was determined by field investigation and the County Assessor's records. These findings are summarized in the following table.

Alias	Structure Type	Foundation Type	Year Built	Condition
Property 1	Residential	Conventional	1977	Avg +
Property 2	Residential	Slab	1976	Good
Property 3	Residential	Slab	1975	Avg +
Property 4	Residential	Slab	1977	Good
Property 5	Residential	Slab	1979	Good
Property 6	Residential	Slab	1976	Good

CONCLUSIONS Based on flood data, the Vensel Creek Basin Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage have been due to overland flow and riverine flooding. The RLA is located within the floodplain and runoff from higher ground inundates the slab-on-grade garages and homes. Additionally, the channel capacity is less than the 100-year event causing increased flooding potential to homes directly along the channel. The 1995 Vensel Creek MDP suggested flood proofing the at-risk structures. The 2024 update recommended downstream channel modifications and acquisition. Homeowners have taken some mitigative actions to divert water away from their homes as of this 2026 update.

RLA 62



Google Earth

© 2026 Google

6.45 ft

Notifications

ANNUAL FLOODPLAIN NOTIFICATION Each year the City notifies all homeowners and residents living in a 100-year floodplain that their properties are subject to flooding and informs them of what steps they can take to protect their residences and families, including the purchase of flood insurance.

ANNUAL REPETITIVE LOSS AREA NOTIFICATION Residents in Repetitive Loss Areas are notified annually that their homes are located in a Repetitive Loss Area and are potentially subject to flood damage from overland flow and storm sewer back-up.

PROPERTY OWNERS/RESIDENTS NOTIFICATION In 2017, property owners and residents/occupants were advised of the Repetitive Loss Area study and analysis by letter, were sent a questionnaire soliciting information and input, and asked to contact the City for more information or a copy of the completed RLA Plan.

PUBLIC PARTICIPATION AND INVOLVEMENT City Staff/Consultants interviewed homeowners to brief them on the Repetitive Loss Area Analysis Study/Plan, receive their input, and discuss possible mitigation measures.

PROPERTY OWNER RESPONSE TO NOTIFICATIONS

- Fred Creek: In 2017 there were several responses to the RLA notification. In RLA 30 these responses provided further complaints of flooding to structures and yards, as well as erosion along the creek. No responses were received from RLA 27. In RLA 8 there have been no reports of flooding since 1999. As of this 2026 update there have been no additional reports of flooding in this RLA.
- Fry Ditch No. 2: In 2017 there were several responses to the RLA notification. In RLA 35 these responses provided further complaints of flooding to structures and yards, as well as erosion along the creek. In RLA 58 a property owner complained in 2020 of yard flooding during frequent rain events.
- Little Haikey Creek: In 2017 there were several responses to the RLA notification. In RLA 57 these responses provided further complaints of flooding to structures and yards; the instances specified were 1976 and 2010– between 2 and 12 inches in these instances. As of this 2026 update there have been no additional reports of flooding in this RLA.
- Vensel Creek: In 2017 there were several responses to the RLA notification. These responses provided further complaints of flooding to structures and yards and confirmed the capacity of E. 77th St. culvert is inadequate. As of this 2026 update there have been no additional reports of flooding in this RLA.

Mitigation Measures

Overview

The 1988 Fred Creek Master Drainage Plan identifies the most cost-effective structural solutions (channel improvements, enlarged inlets and storm sewers, stormwater detention ponds) for the area. Two of the three RLAs were analyzed in the MDP and the suggested actions to mitigate RLA 8 are complete. RLA 27 was mitigated by a roadway improvement project. RLA 27 and RLA 8 should have their status updated to mitigated based on structural projects. RLA 30 was not covered in the MDP. There are presently no funded Capital Improvement Projects for future flood control projects that would benefit this area.

The 1995 Master Drainage Plan Fry Ditch No. 2 identified installing detention upstream, increased culvert capacity to improve conveyance at S. 76th E. Ave., erosion control along the channel, and acquisition and clearing of homes as the most cost-effective solutions for flooding in its RLA 35. The City has completed the upstream detention and erosion control projects as well as partially completed the acquisitions of the homes in RLA 35. RLA 58 was not included in the MDP- it appears the primary cause of flooding has been mitigated through redevelopment of adjacent lots. RLA 58 should have its status updated to mitigated based on this project. There are presently no funded Capital Improvement Projects for future flood control projects that would benefit this area.

The 1989 and 2025 Master Drainage Plan for Little Haikey Creek identified the most cost effective structural and non-structural solutions (acquisition and storm sewer diversion) for RLA 57. These recommendations have not been implemented. RLA 19 is not included in these MDP updates. This RLA is protected from flooding in the 100-year event. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change. There are presently no funded Capital Improvement Projects for future flood control projects in this area.

The 1995 and 2024 Master Drainage Plan for this reach of Vensel Creek identifies culvert enlargement under E. 77th St., storm sewer additions along S. Quebec Ave., floodproofing and acquisition as the most cost-effective solutions for flooding in RLA 62. The City of Tulsa has enlarged the culvert under E. 77th St. Properties in RLA 62 are located along the channel and still susceptible to the 100-year flood. There are presently no funded Capital Improvement Projects for future flood control projects that would benefit this area.

Individual Mitigation Measures: What You Can Do

Individual property protection actions are usually undertaken by property owners on a lot-by-lot, building-by-building basis, and include private floodproofing, moving mechanical equipment above flood levels, installing French drains and minor site grading to move local drainage to the street, sanitary sewer backup protection, and flood insurance.

The City of Tulsa is willing to have a stormwater engineer do a site visit to assist you in analyzing your specific drainage problems and discuss potential solutions. Contact the Customer Care Center at 311 or (918) 596-7777.

KNOW AND UNDERSTAND YOUR FLOOD RISK As stated above, being located in a Repetitive Loss Area does *not* mean a property will flood. Nevertheless, it is important that residents and property owners in flood hazard areas know and understand their flood risk and take what steps they can to protect their homes, families and possessions. City staff are available to explain the local flood risk, interpret floodplain maps, and determine if an area or property has drainage problems or a history of prior flooding. Staff can also discuss the ways a specific property can be protected from flooding. An Elevation Certificate can help define a property's flood risk under various rainfall scenarios (e.g., in a 10-year, 50-year, 100-year, or 300-year storm). You can receive a free flood zone determination by contacting the City with the correct legal description and street address, or the Tax Assessor/Parcel Number of the property.

The City maintains their Regulatory Floodplain map atlas on their website:

<https://cityoftulsa.org/government/departments/water-and-sewer/flood-control>

MAKE A DISASTER PREPAREDNESS PLAN It is always a good idea for residents and property owners in flood hazard zones to prepare a disaster preparedness and response plan that addresses all the steps and details that will demand attention once a flood watch or warning is issued. A Building Permit is required to install a safe room in a flood-prone area.

CREATE BERMS, SWALES OR REDIRECTED DRAINAGE Flood waters can be diverted away from properties using berms, brick planter boxes and swales, but these may not be done in ways that cause damage to other properties. Owners and residents can request a meeting with a City Engineer to discuss the best ways to solve existing drainage problems, and whether a Building Permit will be required. Contact the Customer Care Center at 311 or (918) 596-7777.

INSTALL LOCAL, PROPERTY-SPECIFIC PAVING, PLANTINGS AND CATCHMENT BASINS City Engineering staff can explain the natural functions of floodplains and how they act to slow and purify urban runoff and reduce flooding. Staff can also suggest low-impact development projects which imitate natural floodplain functions by slowing runoff and filtering out impurities. These include such things as rain gardens, catchment basins and pervious paving materials.

ACQUISITION The City of Tulsa has a repetitive loss acquisition program to purchase repeatedly flooded properties. This voluntary program offers owners who are in this situation a way out. The City applies to FEMA for funds using the Hazard Mitigation Grant Program. Once the grant is awarded, the property is appraised as if it were not a flooded property and the offer for the property is based on this appraisal. In addition to getting the best possible price, the owner receives moving expenses, a \$1,000 stipend for purchasing a home outside the floodplain, and a 30-day rent free period after closing in which to move. All closing costs and other fees are paid by the City. Once the owner has moved out, the home is demolished and restored as open space to protect the natural and beneficial function of the floodplain. If you would like more information about this program, contact the Customer Care Center at 311 or [\(918\) 596-7777](tel:9185967777). Acquisition is usually not feasible or cost

effective for areas of shallow flooding. If a property is located in a FEMA Floodway or Special Flood Hazard Area, demolition, acquisition and relocation may be feasible and cost-effective.

ELEVATE DAMAGE-PRONE COMPONENTS Critical items such as furnace or air



This platform and wall protect the home and air conditioning equipment from shallow flooding.

conditioning units should be elevated to avoid flood damage. This should be done for components that are in the wet floodproofed area of the building as well as for units that are outside of the structure but subject to shallow flooding.

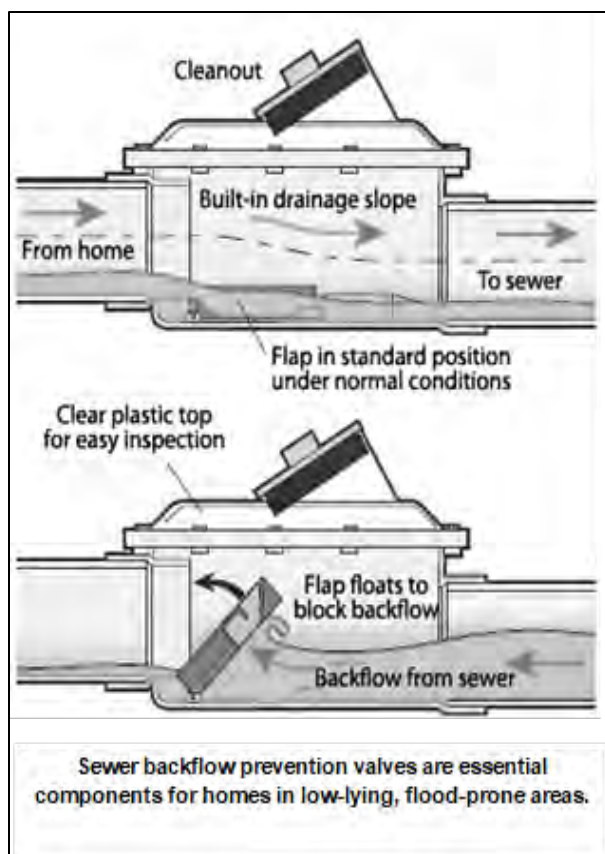
ELEVATE YOUR STRUCTURE

Elevating the structure is only suitable for areas of shallow flooding and is usually not feasible or cost-effective for masonry homes built on concrete slabs. It can sometimes be cost-effective for wood frame buildings on crawlspaces. None of the buildings in these RLAs are a candidate for elevation.

DRY FLOODPROOF YOUR STRUCTURE This can include actions that seal a structure and prevent floodwater from entering. This method is best in areas where flood depths are no more than two or three feet. Buildings can be made watertight by sealing the walls with waterproof coatings, impermeable membranes, or additional layers of masonry or concrete. Doors, windows, and other openings below the base flood elevation must also be equipped with permanent or removable shields, and backflow valves must be installed in sewer lines and drains. Dry floodproofing needs to be designed by an engineer to ensure the structure can resist the force of the water.

WET FLOODPROOF YOUR BUILDING Wet floodproofing allows water to enter a structure, while removing, protecting or elevating items that can be damaged, such as air conditioning equipment. This is often used on structures with crawl spaces and shallow flood depths. The City does not allow basements in flood-prone areas, or the wet floodproofing of basements.

WET FLOODPROOF YOUR GARAGE The garage, with its slab-on-grade construction, is one of the most vulnerable areas of your home to overland flow flooding. Remove, relocate, protect or elevate items that can be damaged from flooding.



CORRECT SANITARY SEWER BACKUP

PROBLEMS. Sanitary Sewer backup can be a problem in low-lying, flood-prone areas. The installation of backflow prevention valves on your sanitary sewer lines is highly recommended.

PURCHASE AND MAINTAIN FLOOD

INSURANCE Flood Insurance is available and recommended for the structure and contents for all properties in Tulsa. A large percentage of all flood claims are for properties that are outside the FEMA floodplain. Because of the City of Tulsa's sustained efforts to reduce flooding, you are entitled to a discount on your flood insurance. A property does not have to be in a floodplain to qualify for flood insurance.

MAINTAIN NEARBY STREAMS, DITCHES, AND

STORM DRAINS Local flooding can often be caused by brush and other debris blocking drainage ways and culverts. Residents and property owners should do their part in

keeping inlets and drainage ways clear of brush and debris. Do not attempt to clear debris during a flood event.

Repetitive Loss Area Mitigation Measures: What the City Can Do

The City of Tulsa is actively committed to the following floodplain management activities:

- Preventative activities to keep flood problems from getting worse.
- Natural resource protection activities to preserve or restore natural areas or the natural functions of floodplain and watershed areas.
- Emergency services measures taken during an emergency to minimize its impact.
- Structural projects to keep flood waters away from properties.
- Public information activities to advise property owners, potential property owners, and visitors about the hazards, ways to protect people and property from the hazards, and the natural and beneficial functions of local floodplains.

As funding becomes available for this Repetitive Loss Area, the City will undertake a more detailed mini-master drainage plan to identify alternative solutions to the flooding problems and recommend a public works project. The actual construction of any public works project may require the acquisition of properties and/or drainage easements. The City will continue to fulfill its maintenance responsibility for channels, drainageways, and storm sewer inlets and pipes. At this time, the City has identified the following actions which may be appropriate for these RLAs.

- Extend and/or improve the storm sewer system to better collect storm water runoff.
- Create overland flow paths to allow better drainage of ponded water to the Creek. This solution is recommended in areas where ponded water could be relieved with a swale or channel.
- Create berms or swales to direct runoff away from residential properties. This solution is used to divert flowing waters away from structures and can only be used within the City's property or right of way.
- Construct upstream detention.
- Acquire flood-prone properties on a voluntary basis. This solution is only recommended for residential properties.

Funding

The City will investigate the availability of funding for the public works actions listed above. Funding for ongoing City maintenance responsibilities is provided by the Stormwater Utility Fee. Funding for a public works project is dependent on several factors, including the prioritized ranking of the project with other Capital Improvement projects, inclusion in future street maintenance projects, being part of a project in a Bond Issue, etc. In the case that the nature of the flooding problems is localized, and minor damage is involved, the funding for needed improvements will have to be borne by the individual homeowner. Another potential funding source is FEMA's Hazard Mitigation Grant Program (HMGP), which can be implemented after a Presidential Major Disaster Declaration in the State.

Recommendations

FRED CREEK

The historic cause of flooding in RLA 8 was overbank flooding caused by storm sewer backup. This area was analyzed during the MDP update and suggested improving the storm sewer system. This recommendation is complete. The system was designed to contain the 100-year event. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

Overland flow from 71st St. historically threatened the properties in RLA 27. The City's efforts to expand the storm sewer system along 71st St. in the 1990s and early 2000s likely mitigated this RLA. As the nature of any continued flooding would likely be localized, the property owner can undertake individual mitigation actions as suitable. A local solution would be to create overland flow paths to better allow drainage of ponding water and flood proofing as appropriate. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

The historic cause of flooding in RLA 30 has been overland flow across the properties as flood water flows to the stormwater inlets. This RLA was not analyzed during the MDP and is located outside of FEMA and the City's regulatory floodplain. Individual mitigation actions can be taken to reduce overland flooding risk. Local solutions would include elevating utilities, creating overland flow paths to better allow drainage of ponding water, and floodproofing as appropriate.

FRY DITCH NO. 2

Overbank and overland flooding have historically threatened the properties in RLA 35. This area was analyzed in the MDP, and the recommendations were detention upstream, increased culvert capacity to improve conveyance at S. 76th E. Ave., erosion control along the channel, and acquisition and clearing of homes. The structural actions did not mitigate the 100-year flood in this RLA therefore acquisition or floodproofing are the most cost-effective remaining options to mitigate their susceptibility to riverine flooding.

Overland flow has historically been the primary cause of flooding in RLA 58. This area was not analyzed in the MDP. The overflow from the adjacent property has been mitigated through redevelopment in 2023. If flooding has continued it is likely due to these overland flow paths through yards in the area. Individual mitigation actions can be taken to reduce overland flooding risk. Local solutions would include elevating utilities, creating overland flow paths to better allow drainage of ponding water, and floodproofing as appropriate.

HAIKEY CREEK

Flooding in RLA 19 is likely caused by inadequate storm sewer conveyance and overland flow along the low-lying properties in this RLA. The detention pond that was installed directly north of these homes has lowered their susceptibility to flooding in the 100-year event although they flooded shortly after the construction of the pond by a larger storm than the system was designed for. This RLA is protected from flooding in the 100-year event. The City submitted paperwork to change the status of this RLA in 2023 and will continue to pursue its status change.

Flooding in RLA 57 has historically been due to overland flow and storm sewer backup from an undersized system threatening the slab-on-grade properties along the low-lying terrain in this area. The MDP recommendations were acquisition and storm sewer diversion. Neither action has been completed and the structures are still susceptible to the 100-year flood.

VENSEL CREEK

The causes of flooding in RLA 62 are overland flow from the high ground to the east that is not captured by the storm sewer and riverine flooding along the channel. This area was analyzed in the 1995 MDP. The recommendations were flood proofing of homes along the channel. The 2024 update recommended downstream channel improvements and acquisition. Despite the installation of larger culverts at E. 77th St. and storm sewer improvements along S. Quebec Ave. the RLA is still susceptible to riverine flooding from the 100-year event.

Property owners are encouraged to maintain flood insurance. The City of Tulsa is a Community Rating System (CRS) Class I Community, and all homeowners qualify for up to a 45% discount on their flood insurance premiums. Homeowners are also encouraged to undertake individual mitigation measures to reduce their risk of overland flooding. The City of Tulsa is ready to assist in this effort with professional advice.