
City of Tulsa
Repetitive Loss Area Analysis
Northwest 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.

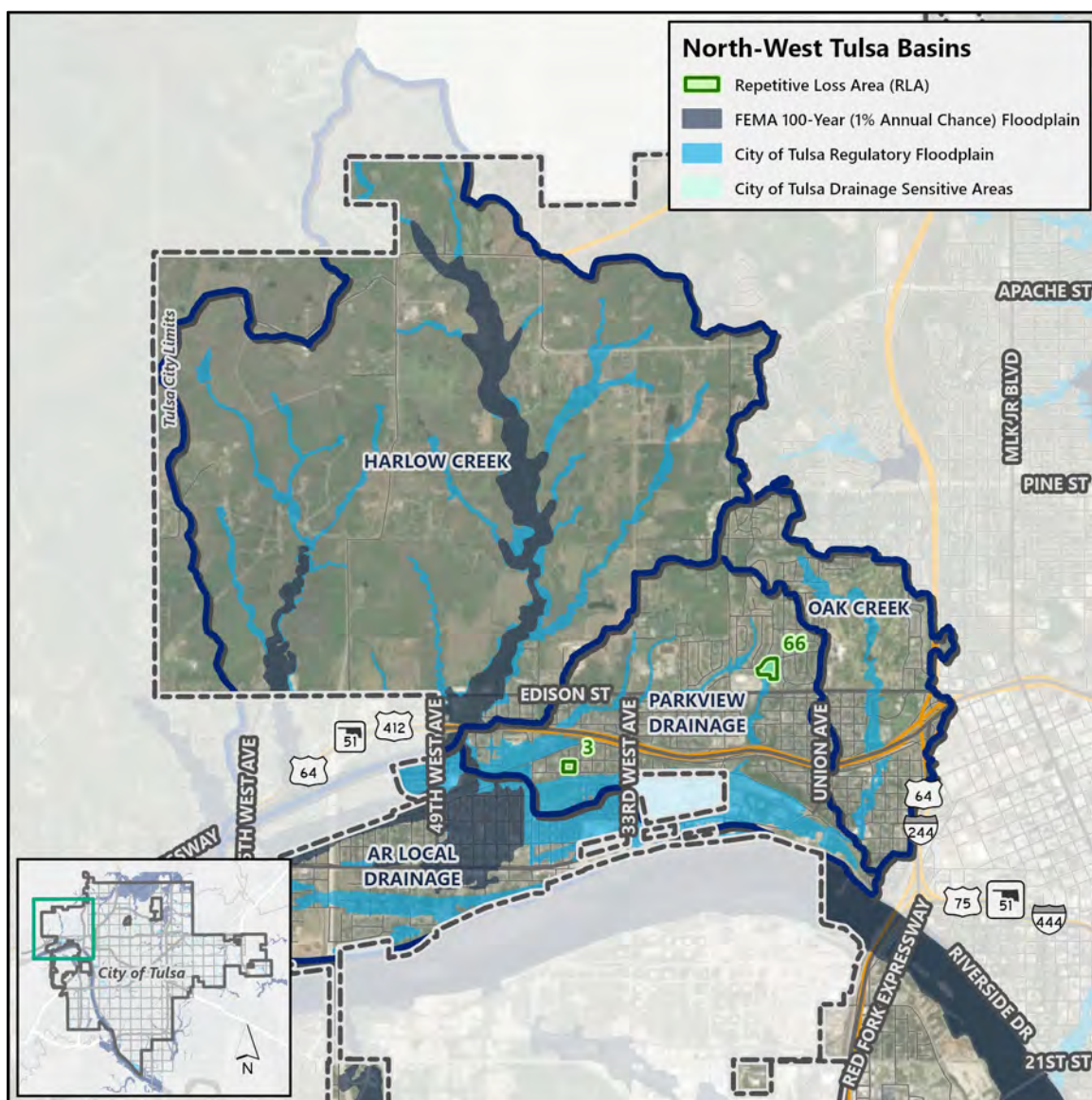
⁴ National Weather Service. *Tulsa Memorial Day Flood of May 26-27, 1984*.
https://www.weather.gov/tsa/1984may26_tulsamemorialdayflood

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

Location and Drainage

The Northwest Tulsa basin group is located along the tributaries of the Arkansas River. Most of this basin group is covered with residential and industrial land use. The upstream ends of the basin are less developed and covered in primarily open space. The downstream portions of Harlow Creek, Parkview Creek and the Arkansas River local drainage area are protected by levees, this is further described in the following section. This basin group is covered by council district 6.

Figure 1: Northwest Tulsa



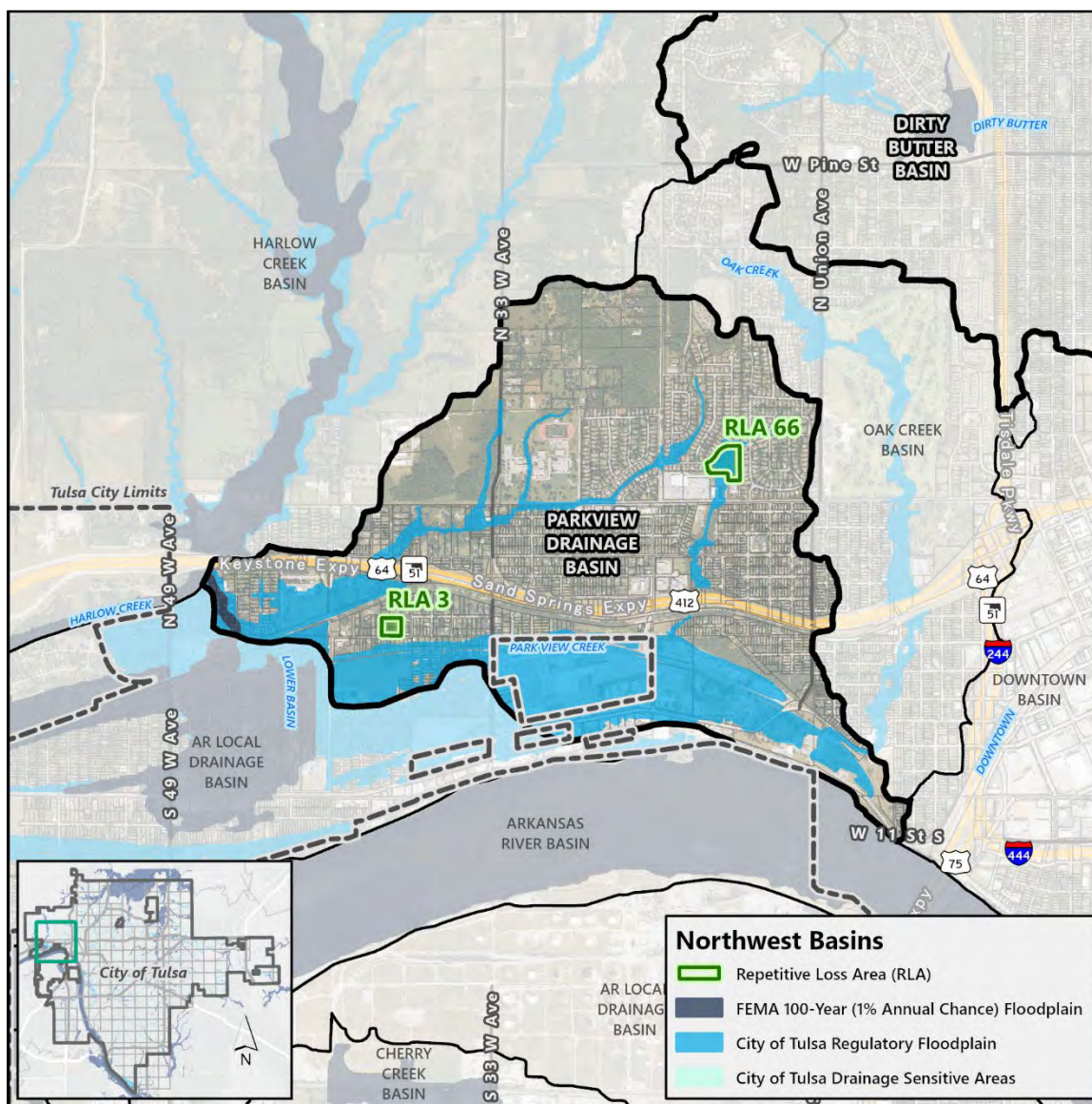
The Northwest Tulsa Basin Group contains three subbasins: Harlow Creek, Parkview Creek, and Oak Creek, and two repetitive loss areas. The creeks within the Northwest Tulsa Basins of Harlow and Oak Creeks' floodplains are located within Special Flood Hazard Area and the City

regulatory floodplain. The Parkview Creek lower basin is located in a levee protected area and therefore not mapped in the SFHA; the creek and its tributaries are mapped in the City regulatory floodplain. This area historically was subject to a mix of overbank flooding and overland flooding. There is one basin containing two unmitigated repetitive loss properties.

Parkview Creek

Parkview Creek is located in Northwest Tulsa. This creek is a tributary to the Arkansas River; it extends approximately 3.5 miles and has a contributing drainage area of approximately 1.86 square miles. The watershed is covered in mostly residential land use with larger swaths of opens space toward the top of the basin. The creek originates near W. Jasper St. and W. Independence Pl. and generally flows south-southwest until it splits along the improved ditch that separates upper and lower Parkview Creek drainage areas. The ditch drains southeast and outfalls near W. 7th St. and S. Quanah Ave. on the south side of the Sand Springs Railway.

Figure 2: Parkview Creek Overview



The Parkview Creek is within the City of Tulsa regulatory floodplain, which encompasses the mainstem and several tributaries. Lower Parkview Creek Drainage is in a levee protected area.

The construction of these levees was carried out by the US Army Corps of Engineers (USACE), authorized by the Flood Control Act of 1941. There are two levees on the left bank of the Arkansas River, Levee A and B, and one on the right bank, Levee C. The levees were completed by 1945 and are designed to protect against Arkansas River flows up to 350,000 CFS. The Parkview Creek basin contains two unmitigated RLAs.

RLA 3

Area Specific Flooding

Repetitive Loss Area 3, located in the Parkview Creek watershed, was established in 2017. This Repetitive Loss Area is comprised of seven structures on eight properties located at the intersection of W. Archer St. and N. 83rd W. Ave. The properties are located outside of the FEMA SFHA and City regulatory floodplain toward the top of the Lower Parkview Creek basin. This RLA is located in an area protected by Levee B.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flow, inadequate ditches, and storm sewer backup. The terrain on which these properties reside is generally sloped toward the north which carries water across the properties before entering the ditches and subsequently the storm sewer. These properties have not made flooding claims or complaints since 1984.

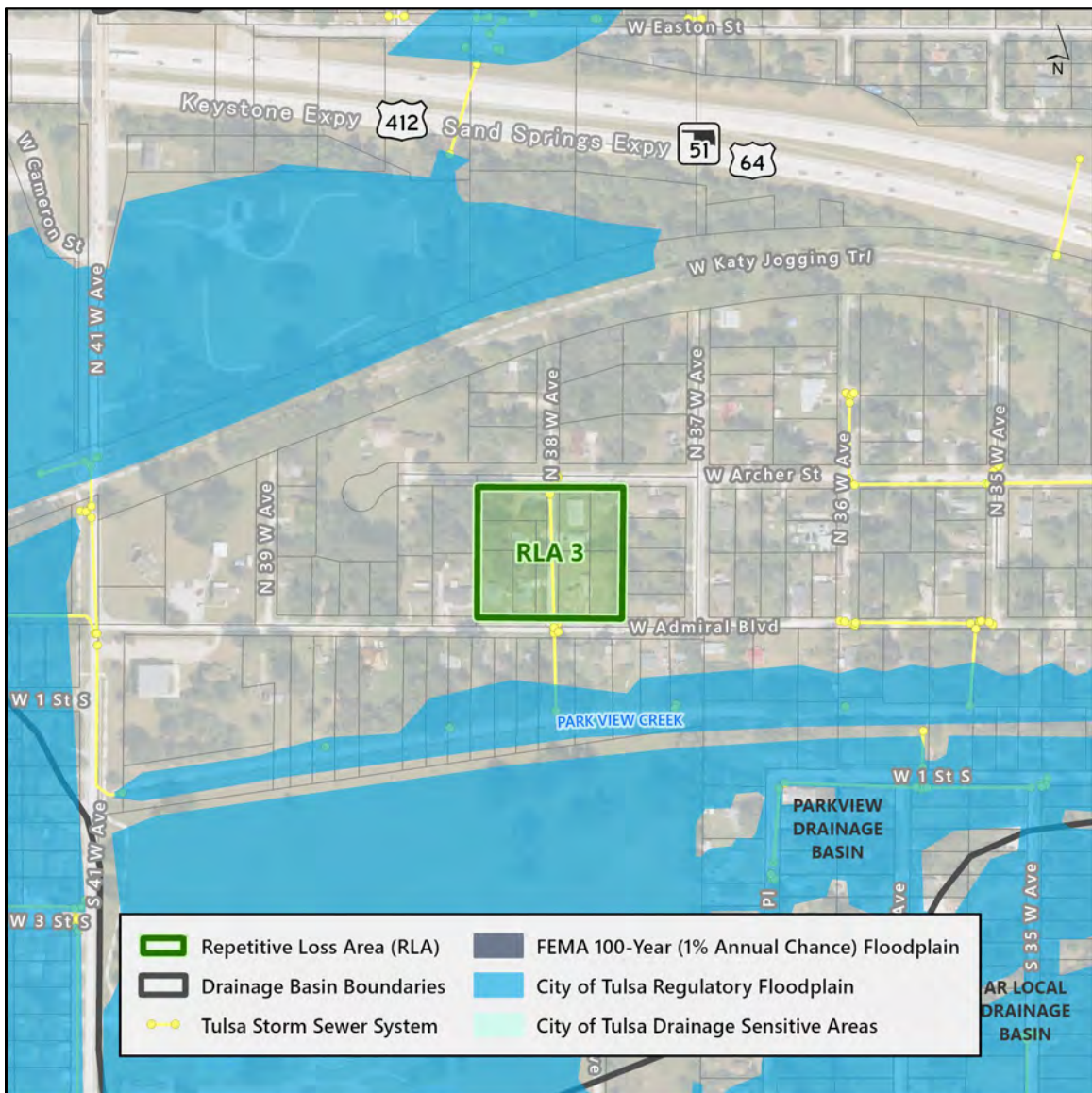
This area was evaluated as a problem area in the 2022 Northwest Basins Master Drainage Plan. The study found that there is inadequate drainage provided by the storm sewer and ditches, leading to yard flooding and possible structure flooding in events greater than the 100-year, especially for slab-on-grade properties. The recommendation was voluntary acquisition of five properties.

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 that would reduce flooding in this RLA. Since the 2017 report, one structure has been demolished but is still privately owned.

Figure 3: RLA 3



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 \$19,950. 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 Northwest Basins 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: 40145C0020J, September 29, 2016
- Regulatory Floodplain Map Atlas, Tulsa Engineering Services, March 2021
- 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
- Northwest Basins Master Drainage Plan, McLaughlin Water Engineers, 1989
- Northwest Basins Master Drainage Plan, Meshek & Associates, August 2022
- Repetitive Loss Area #3, Flanagan & Associates, Swift Water Resources, 2017

CAPITAL IMPROVEMENTS PLANS The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the voluntary acquisition and relocation measures recommended in the 2022 Master Drainage Plan.

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	Crawl Space	1961	Avg
Property 2	Residential	Crawl Space	1955	Good
Property 3	Residential	Slab	1955	Avg
Property 4	Residential	Crawl Space	1968	Fair
Property 5	Vacant			
Property 6	Residential	Crawl Space	1948	Avg +
Property 7	Residential	Crawl Space	1968	Avg +
Property 8	Residential	Crawl Space	1939	Avg

CONCLUSIONS Based on flood data, the Northwest Basins Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage have been overland flow from the south, inadequate grading to promote runoff's capture in the bar ditches, and inadequate storm sewer capacity. These factors have made the buildings more susceptible to flooding, especially those with slab-on-grade foundations. The MDP recommends acquisition to mitigate the flooding of the structures in this area. To manage localized flooding, the property owner can undertake individual mitigation actions as described in the Mitigation Measures section. The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the voluntary acquisition and relocation measures recommended in the 2022 Master Drainage Plan.

RLA 3



Google Earth

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7.26 ft

RLA 66

Area Specific Flooding

Repetitive Loss Area 66, located in the Parkview Creek watershed, was established in 2022. This Repetitive Loss Area is comprised of fifteen properties located at the intersection of W. Haskell St. and N. Yukon Ave. The properties were constructed between 1973 and 1979. Ten of the properties are located in the City's regulatory floodplain.

Drainage conditions in this RLA indicate that flooding is likely caused by overland flow from properties to the north and east and storm sewer backup. The terrain on which these properties reside is generally sloped inward from east and west along the swale that was Parkview Creek which is now conveyed by storm sewer running south through the area.

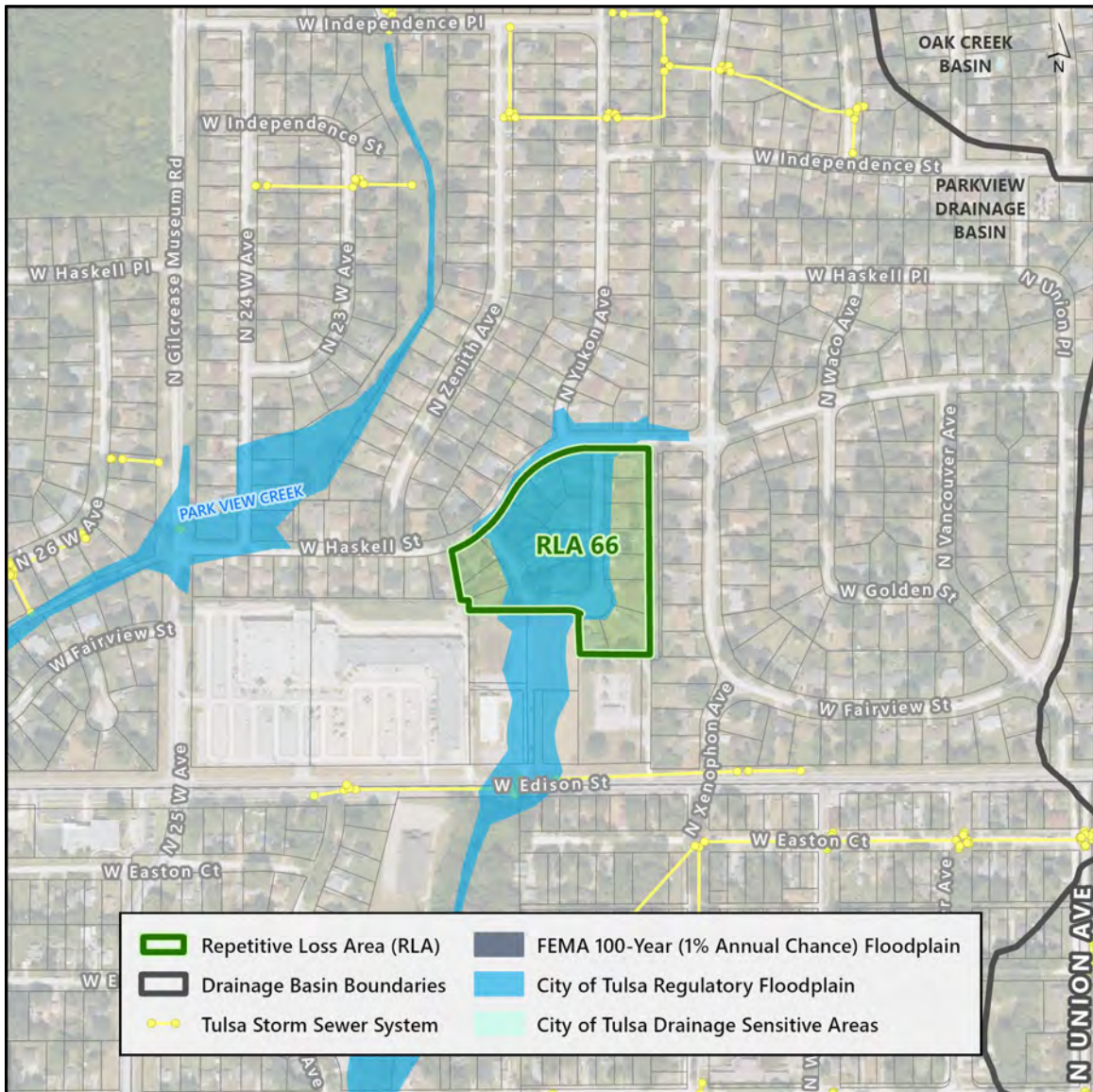
This area was evaluated as a problem area in the 1989 and 2022 Northwest Basins Master Drainage Plan. The most recent of the two plans found that the storm sewer through this area is capable of conveying the 2-year storm. The report states that flooding in the 100-year event would be limited to yard and street flooding. It is likely that more severe storms could cause flooding of structures. Additionally, local runoff crosses through the properties on the east side of this RLA on its way to the storm sewer system, increasing flooding potential for these slab-on-grade properties. The 1989 plan recommended increasing the storm sewer capacity. The 2022 plan updated the recommendation to include storm sewer improvements and downstream channel capacity 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

There have been no improvements that would reduce flooding in this RLA.

Figure 4: RLA 66



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 \$6,081. The last claim for this RLA was filed in 2019. 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 2022 by the Project Team through interviews with City officials, research into Stormwater Design files, including the Northwest Basins 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 2022 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: 40145C0020J, September 29, 2016
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- Guidebook to Conducting Repetitive Loss Area Analyses, UNO and FEMA
- Northwest Basins Master Drainage Plan, McLaughlin Water Engineers, 1989
- Northwest Basins Master Drainage Plan, Meshek & Associates, August 2022
- Repetitive Loss Area #66, Meshek & Associates, 2022

CAPITAL IMPROVEMENTS PLANS The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the channel and storm sewer capacity improvements recommended in the 2022 Master Drainage Plan.

FIELD SURVEYS AND SITE VISITS In 2022, 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	1975	Avg
Property 2	Residential	Slab	1979	Avg
Property 3	Residential	Slab	1975	Avg
Property 4	Residential	Slab	1975	Avg
Property 5	Residential	Slab	1978	Avg
Property 6	Residential	Slab	1977	Avg
Property 7	Residential	Slab	1975	Avg
Property 8	Residential	Slab	1979	Avg
Property 9	Residential	Slab	1975	Avg
Property 10	Residential	Slab	1979	Avg
Property 11	Residential	Slab	1978	Avg
Property 12	Residential	Slab	1973	Avg
Property 13	Residential	Slab	1977	Avg
Property 14	Residential	Slab	1975	Avg
Property 15	Residential	Slab	1975	Avg

CONCLUSIONS Based on flood data, the Northwest Basins Master Drainage Plan, site surveys and feedback from residents and homeowners, the causes of damage have been overland flow from the north and east and storm sewer backup. To solve the localized flooding from runoff

from adjacent properties to the east, the property owner can undertake individual mitigation actions as described in the Mitigation Measures section. To mitigate the storm sewer backup, the MDP recommends increasing the mainline storm sewer capacity throughout the reach, beginning at the intersection of W. Haskell St. and N. Xenophon Ave. and continuing all the way downstream to W. Edison St. The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the channel and storm sewer capacity improvements recommended in the 2022 Master Drainage Plan.

RLA 66



Google Earth

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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 In 2017 there were no responses to the RLA notification in RLA 3. In 2022 there were no responses to the RLA notification in RLA 66. As of this 2026 update there have been no additional reports of flooding in this RLA.

Mitigation Measures

Overview

The MDP recommended acquisition and relocation in RLA 3. Individual property protection actions can be undertaken to reduce the risk of the slab-on-grade structures from additional runoff before it's captured by the storm sewer. The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the voluntary acquisition and relocation measures recommended in the 2022 Master Drainage Plan.

The Northwest Master Drainage Plan for Parkview Tributary LB1 identifies the most cost-effective structural solutions for the entire drainage basin. The recommended plan to alleviate flooding in RLA 66 is to increase the mainline storm sewer capacity throughout the reach. The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the channel and storm sewer capacity improvements recommended in the 2022 Master Drainage Plan.

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



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

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.

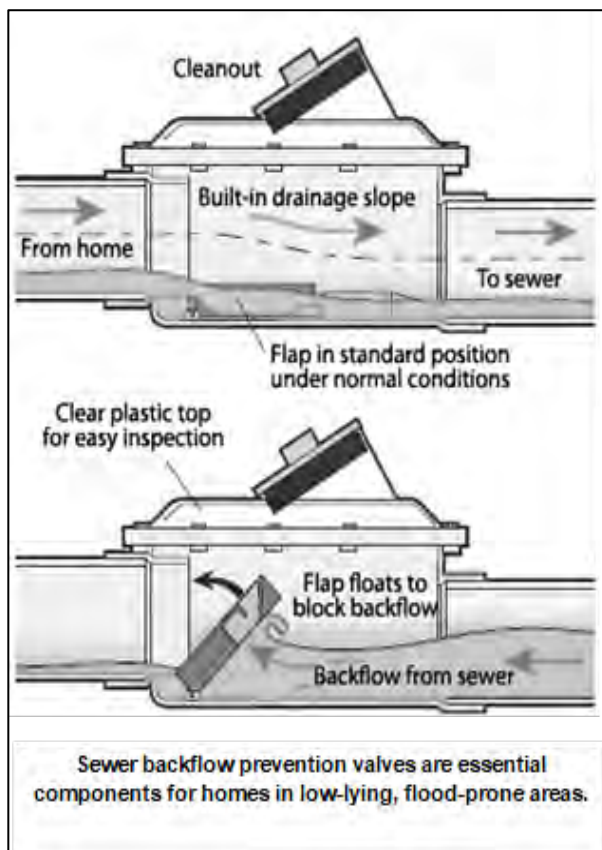
ELEVATE DAMAGE-PRONE COMPONENTS Critical items such as furnace or air conditioning units should be elevated to avoid flood damage. This should be done for components that are in the wet floodproofed area of the building as well as for units that are outside of the structure but subject to shallow flooding.

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

PARKVIEW CREEK

Flood damage in RLA 3 has historically resulted from overland flow from the south, inadequate grading to promote runoff capture in the bar ditches, and inadequate storm sewer capacity. These factors have made the buildings more susceptible to flooding, especially those with slab-on-grade foundations. The MDP recommends voluntary acquisition and relocation of five structures in this area. To manage localized flooding, the property owner can undertake individual mitigation actions, these include creating overland flow paths to better allow drainage sheet flow, and flood proofing as appropriate. The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the voluntary acquisition and relocation measures recommended in the 2022 Master Drainage Plan.

Flood damage in RLA 66 has historically resulted from overland flow entering the properties from the north and east, and an undersized storm sewer system. These conditions have led to flooded streets and structural flooding. A local solution to protect the slab-on-grade homes from overland flow draining from the east would be to create overland flow paths to reduce ponding potential and flood proofing as appropriate. The MDP recommends increasing the mainline storm sewer capacity throughout the reach which now has approximately a 2-year capacity. The City of Tulsa has planned a Capital Improvement Project that would benefit this RLA by implementing the channel and storm sewer capacity improvements recommended in the 2022 Master Drainage Plan.

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.