Repetitive Loss Area # 22

Little Joe Creek

E. 58th St. & S. 73rd E. Ave. Area

August 17, 2017

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Planning Consultants

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Engineering Services

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August 17, 2017

Dear Resident/Property Owner:

Once considered the most flood-prone city in America, Tulsa has worked hard to reduce or eliminate flooding of its homes and neighborhoods. The City joined the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP) in 1974 and through decades of effort is now recognized as a national leader in flood hazard mitigation. As a result, property owners in Tulsa receive as much as 40% discount on their flood insurance.

A key component of the NFIP has been its focus on Repetitive Loss Properties, which make up only 1 percent of insured properties, but account for over 30 percent of flood insurance claims payments. A Repetitive Loss Property is defined by FEMA as any property that has been paid two or more flood insurance claims of $1,000 or more in a 10-year time period.

The NFIP recently expanded its flood hazard mitigation program to include the identification of "Repetitive Loss Areas" (RLA)—those properties near an existing Repetitive Loss Property that may be subject to the same general flooding conditions. In most instances, 95% of the properties in an RLA will never have experienced flooding—especially if the cause of damage is shallow, overland flow due to local drainage conditions. Once the City has identified an RLA, we are required to contact the owners and residents of the area and work together to develop a plan to reduce or eliminate flooding in the neighborhood.

Your property has been identified as being in an Repetitive Loss Area. We want to re-emphasize that this does not mean your property has flooded or is even likely to flood—only that it is in the same area, and in a similar geographical situation, as an existing Repetitive Loss Property.

You can protect your property from flooding. We would like to invite you to participate in our flood prevention and mitigation efforts for your neighborhood. We need your input. What can we do, working together, to eliminate potential flood losses in your area? We look forward to hearing from you. To learn more about your risk of flooding visit www.floodsmart.gov or contact the City of Tulsa Customer Care Center at (918) 596-7777.

Sincerely,
CITY OF TULSA, ENGINEERING SERVICES

Bill Robison

Bill Robison, P.E., CFM
Senior Special Projects Engineer
Stormwater Project Coordination

Contents

Acknowledgements

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Repetitive Loss Area # 22

Little Joe Creek
E. 58th St. & S. 73rd E. Ave. Area

Overview

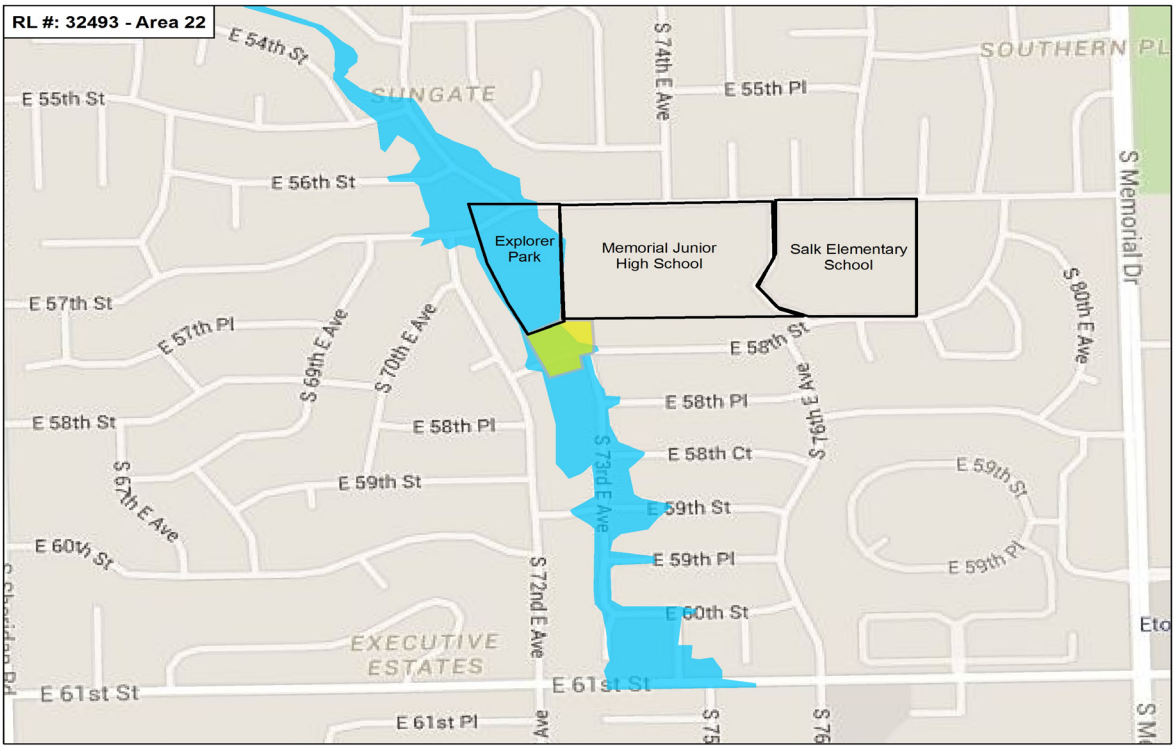
Repetitive Loss Area (RLA) #22 is located immediately south of Memorial Junior High School and Explorer Park, at the intersection of E. 58th St. and S. 73rd E. Ave. The RLA is about 6.4 miles above Joe Creek's junction with the Arkansas River. There are four single-family residences and one Repetitive Loss Property in the RLA. The homes were built between 1963 and 1966, and are one-story, ranch-style, frame structures with brick facia in Good condition. In 1979 and 1984 overland flow and storm sewer backup along E. 58th St. generated two damage claims for the local Repetitive Loss Property totaling $2,791. The 1979 claim was for $1,572, and included structure and contents damage, and that for 1984 was for $1,219 and was for structure damage only. The channel modifications by the City and the US Army Corps of Engineers in the 1980s that removed most of Little Joe Creek from FEMA's Special Flood Hazard Area (SFHA) and the City of Tulsa's Regulatory Floodplain (TRFP) did not reach this far upstream. Little Joe Creek is essentially natural and unimproved in the immediate vicinity of RLA #22, although there is a 300-yard-long concrete channel 50 yards south of 58th St., and the creek goes underground on the north side of Explorer Park for another 300 yards to emerge into the channelized course at about E. 54th St. and S. 70th E. Ave. Storm sewer improvements and a culvert enlargement in the 1990s did much to eliminate street and yard flooding along 58th Ave. What flooding remains is largely due to overland flow and local drainage problems in the generally level terrain.

The general location of RLA #22 is shown on the map on Page 2 and on the more detailed photo/topography map on Page 4. The detailed map identifies residential properties, County Assessor parcels, floodplains and the existing storm sewers system.

I. Background

During the post-World War building boom of the 1950s and 1960s, Tulsa expanded rapidly east and south into the basins of Mingo and Joe creeks. Because of the city's climate and the broad floodplains along these creeks, this growth brought with it an increased risk of flooding. And indeed, by the mid-1980s floods were occurring almost yearly and flooding had become Tulsa's most destructive natural hazard. One researcher at the time declared Tulsa "the most flood-prone community in the nation."

Tulsa was not unique in its rapid post-war development and attendant risks. Cities across America were experiencing similar problems as they spread out into prosperous subdivisions. In response, the U.S. Congress created the National Flood Insurance Program (NFIP) in 1968 to help property owners protect themselves from flood losses.



RLA #22 is located immediately south of Memorial Junior High School and Explorer Park at the intersection of E. 58th St. and S. 73rd E. Ave.

The NFIP offered flood insurance to homeowners, renters, and business owners if their community participated in the NFIP and agreed to adopt and enforce ordinances that met or exceeded FEMA requirements to reduce the risk of flooding.

Tulsa joined the NFIP in 1974, and through great effort and considerable expense has significantly reduced its exposure to flooding. As a result, Tulsa has been awarded a Class II rating in the NFIP's Community Rating System (CRS), which grants its residents a 40 percent discount on the cost of flood insurance for structures in the Special Flood Hazard Area (SFHA), also known as the 1% or 100-year floodplain. Since the Biggert-Waters Flood Insurance Reform Act of 2012, many properties have seen a substantial increase in their premiums, making this discount even more important.

For its part, the NFIP is continually faced with the job of paying claims while trying to keep the price of flood insurance at an affordable level. Properties that flood repeatedly—known as "repetitive loss properties," have been a particular problem for the program: Although they make up only 1 percent of insured properties, they account for one-third of all claims payments (about $200 million a year, or $4.5 billion to date). A repetitive loss property is defined by FEMA as any property that has been paid two or more flood insurance claims of $1,000 or more in a 10-year time period.

Consequently, one of the requirements of the CRS is that communities identify all repetitive loss properties in their jurisdiction and work with the owners to find ways to reduce or eliminate future flood damage. This initiative has been very successful in reducing flood losses and claims.

FEMA has recently extended its repetitive loss program to include "Repetitive Loss Areas" (RLA). To maintain a Class II rating in the CRS, Tulsa is now required to analyze the area surrounding each of its repetitive loss properties and identify any neighboring properties (including uninsured ones) may be subject to the same general flooding conditions. This group of nearby properties is then designated as an RLA. The City is required to contact the owners of the properties in the RLA, inform them that they are located in an area subject to flooding, and develop a plan for mitigating or eliminating flooding in the area, much as has been done for the individual repetitive loss properties.

It is important to note that most of the homes in a RLA—perhaps as many as 80% or 90%—may not have experienced flooding of any kind. What they have in common is being subject to the same general geographical and flood conditions as the nearby repetitive loss property. It should also be stressed that the flooding events in question may have had little or nothing to do with overflow from a creek, but may have been the result of storm sewer backup or overland flow from a neighbor's property into a low-lying, slab-on-grade home or garage.

The location of RLA #22 is shown on the aerial photo/topography map on page 4, below. The map identifies residential properties, County Assessor parcels, floodplains and the existing storm drainage system.

II. Location

Joe Creek is about 6.5 miles in length and drains an area of 13.7 sq. miles in southeast Tulsa. The creek has several tributary branches (East and West Joe Creek, Little Joe and South Joe) that converge near E. 53rd and S. Evanston Ave., at Manion Park, just north of Eisenhower International School, to form lower Joe Creek mainstem. The mainstem and its tributaries have been channelized through much of their lengths.

Little Joe Creek, itself, rises near S. 61st St. and 73rd E. Ave. and flows north and then west for 3.4 miles, crossing under Sheridan Rd. just south of The Farm shopping center and then entering La Fortune Park at about Hudson Ave. and 56th St. before finally joining the North and South

Little Joe Creek channel, looking north—downstream—from E. 58th St.

Forks of the creek at Manion Park.

Located along Little Joe Creek immediately south of Explorer Park and Memorial Junior High School, RLA #22 is about 6.4 miles above the creek's junction with the Arkansas River. Of the four residences that make up the RLA, all properties are situated in the Little Joe Creek City of Tulsa Regulatory Floodplain at between 748 and 752 ft. elevation.

III. History

Development

The homes in RLA #22 were constructed between 1963 and 1966 before any channelization improvements had been made along the creek. In its lower reaches, portions of Joe Creek used to meander through soft, loamy soils and often shifted channels by as much as 1,000 feet, undermining trees along its banks, which would then topple into the creek and block flows during heavy downpours. Concrete channels seemed the best option for controlling flooding in some reaches of the creek.

Flooding

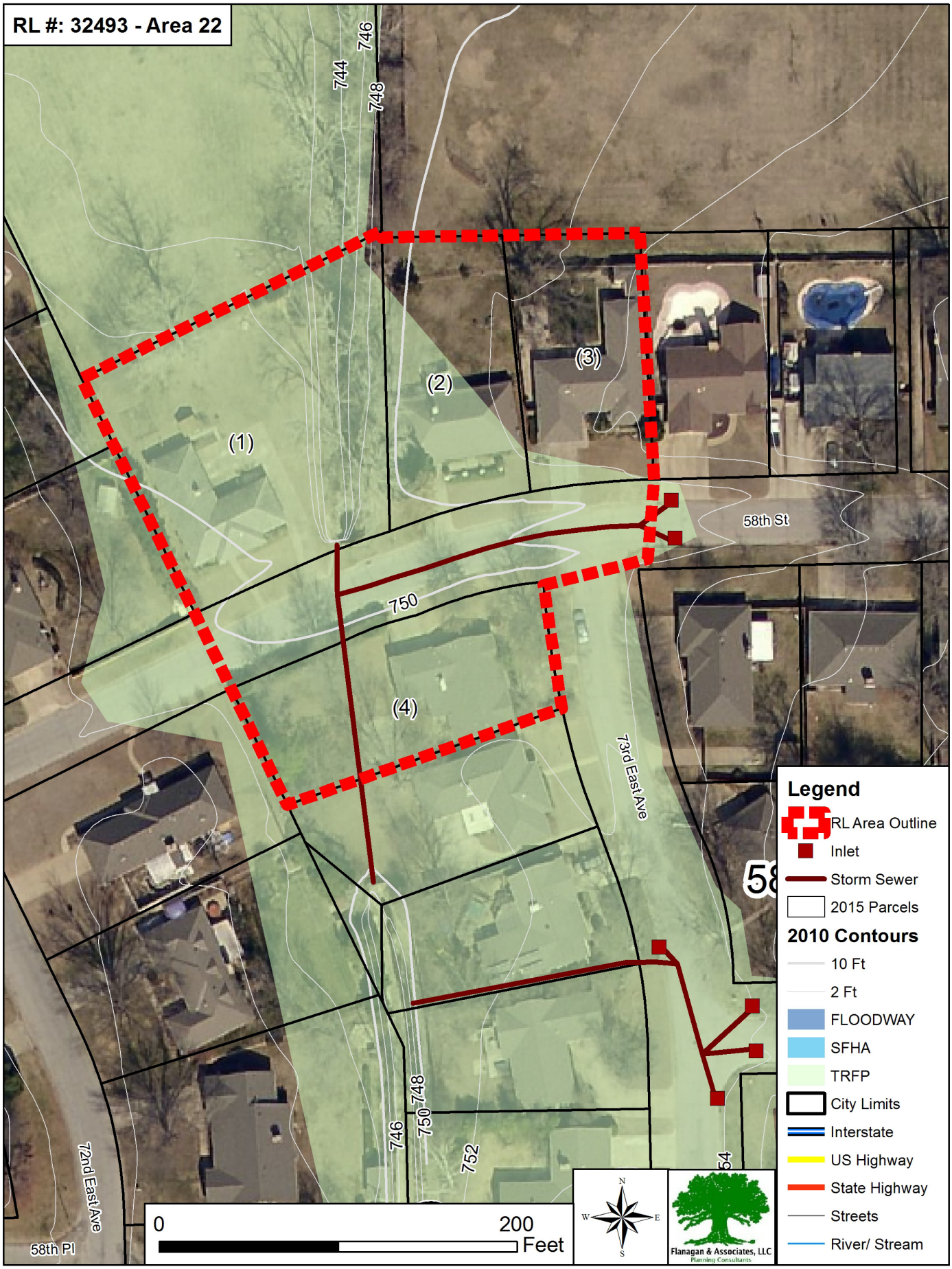
There was significant flooding on Joe Creek in October 1959, May 10-11, 1970 (Mothers Day flood), June 7-9, 1974, May 31, 1976 (Memorial Day flood), June 21, 1979, June 17, 1980, May 27, 1984 (another Memorial Day flood) and May 7, 1993. According to newspaper reports, flooding was particularly bad on Joe Creek in 1974 and 1976, although not necessarily along this reach. The floods that resulted in the two damage claims in RLA #22 totaling $2,791 occurred in 1979 and 1984. The 1979 claim was for $1,572 and the 1984 claim was for $1,219. The flooding was due to overland flow and storm sewer backup along E. 58th St.

Improvements

Subsequent improvements to the Little Joe Creek channel by the City and the US Army Corps of Engineers between 1978 and 1981 largely solved the riverine flooding problems along the creek, and removed much—but not this stretch of Little Joe Creek from both FEMA's SFHA and the City's Regulatory Floodplain. Expansion of the storm sewer network in this area during the 1990s has eliminated the sewer backup and street flooding that used to occur after heavy rains. The culvert that carries Little Joe Creek under E. 58th St. has also been enlarged and four new storm sewers installed just east of the creek—one of them directly in front of the local Repetitive Loss Property. Nevertheless, all of the properties in RLA #22 are either within or touched by the City of Tulsa's Regulatory Floodplain. There has been some continued localized flooding in the neighborhood due to the slab on grade foundations of the homes and individual residential landscaping and drainage patterns in the generally level terrain.

IV. Research and Analysis

The analysis of Repetitive Loss Area #22 was conducted by the Project Team through interviews with City officials, research into Engineering Services and Stormwater Drainage files, including the Joe Creek Master Drainage Plan, review of the City's extensive flood history documentation, assessment of insurance claims, field trips to the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Interstate
US Highway
State Highway
Streets
River/ Stream

RLA, interviews with home owners and questionnaires mailed to the residences soliciting information about prior and existing flooding issues, if any.

Agencies and Organizations

The City of Tulsa's Storm Drainage & Hazard Mitigation Advisory Board (SDHMAB), which also serves as the City's Hazard Mitigation and CRS Committee, and the CRS Public Participation Involvement & Information Committee (PPI) met monthly during the two-year Repetitive Loss Area Planning process. Each committee was updated on the status of the planning process, discussed issues, and provided guidance. Research and analysis were done in accordance with guidelines from the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP) and the Community Rating System (CRS).

Local, State & Federal Agencies and non-profit organizations are represented on the PPI Committee. The RLA plans were discussed at the PPI Committee meetings, and other agencies such as TAEMA were contacted by phone or email. The RLA plans were presented to City Council for adoption; the agenda was made public and furnished to the media. The council meeting is a public meeting and the local media was present at the meeting. In addition the council meetings are aired on our local government network TV channel TGOV.

Participating agencies and organizations involved were: City of Tulsa (CoT) Storm Drainage & Hazard Mitigation Advisory Board, CRS PPI Committee, CoT Communications Department, CoT Development Services, Working in Neighborhoods, CoT Engineering Services, CoT Finance Department, CoT Legal Department, CoT Streets & Stormwater, CoT Water & Sewer Department, Child Care Resource Center, Indian Nations Council of Governments, Tulsa Area Emergency Management Agency (TAEMA), Disaster Resilience Network, Metropolitan Environmental Trust, Oklahoma Insurance Department, Tulsa Association of Realtors, U.S. Army Corps of Engineers.

Plans, Studies and Documents

The following City of Tulsa and FEMA documents were used in the analysis:

- *Flood Insurance Rate Map*, City of Tulsa, October 16, 2012
- *Regulatory Floodplain Map Atlas*, Tulsa Engineering Services, October 2016
- *2014 City of Tulsa Hazard Mitigation Plan Update*, Flanagan & Assoc., 2014
- City of Tulsa *Stormwater Management Plan*
- Stormwater Design Criteria Manual: Critical Neighborhood Flood Control Projects
- Stormwater Capital Improvements List, City of Tulsa, Engineering Services
- *Guidebook to Conducting Repetitive Loss Area Analyses*, UNO and FEMA

Capital Improvements Plans

City of Tulsa Capital Improvements are currently planned that could have a positive impact on the flooding problems in Repetitive Loss Area # 22. There are storm sewer improvement and regional detention facilities on the existing CIPs for Little Joe Creek along with Master Drainage Plan recommendations that are not yet on the CIPs. None are presently funded.

Flood Insurance Data

One of the four properties in the RLA—its Repetitive Loss Property—currently carries flood insurance. 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.

Claims Data.

One property in RLA #22 has made a total of two flood damage claims—in 1979 and 1984, and received total payments of $2,791. The claims averaged about $1,400 each.

Field Surveys and Site Visits

Site visits were conducted during the study, primarily to confirm foundation type and view local on-site overland flow drainage patterns.

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 RLA #22 to determine the situation and condition of the structures. Visual analysis was verified by queries of Tulsa County Assessor data.

Structure Type.

The structures in RLA #22 are all single-family residences.

Foundation Type.

The type of foundation was determined by field investigation and query of Tulsa County Assessor records. All four residences in RLA #22 are built on slab-on-grade foundations.

Condition of Structures.

The condition of the residences in the RLA was determined by field investigation and a search of the County Assessor's records. The structures were all considered to be in Good condition. These findings are summarized in the following table.

Properties in the RLA

Address	Structure Type	Foundation Type	Year Built	Condition
Property 1	Single Family Res.	Slab	1966	Good
Property 2	Single Family Res	Slab	1963	Good
Property 3	Single Family Res	Slab	1963	Good
Property 4	Single Family Res	Slab	1963	Good

Notification

Annual Floodplain Notification. Each year, in March, 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 Area #22 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. 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. The Repetitive Loss Property in RLA #22 is a slab-on-grade structure that received flood damage on two occasions from storm sewer backup, street flooding and overland flow. The recommended action was to add storm drains along E. 58th Ave.

Conclusions

Flooding in RLA #22 has been the result of overbank flooding from Little Joe Creek, storm sewer backup, an undersized culvert, street flooding along E. 58th St., and overland flow. Three residences in the RLA are fully within the City of Tulsa's Regulatory Floodplain (TRFP), in an area of shallow flooding, while the single Repetitive Loss Property is only partially touched by the TRFP. All of the structures in the RLA have slab-on-grade foundations and are at between the 748 and 752 elevation contours. While channel improvements along Little Joe Creek have largely removed it from FEMA's and the City's regulatory floodplains, the stretch of Little Joe Creek in the immediate vicinity of RLA #22—for 50 yards upstream and 300 yards downstream—remains in a relatively natural condition. Four storm sewers were installed in RLA #22 along E. 58th St. in the 1990s to eliminate storm sewer backup and yard and property flooding in the generally level terrain. Based on flood data, site surveys and feedback from residents and homeowners, the remaining drainage problems are due to the slab-on-grade construction of the homes and overland flow.

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

V. Mitigation Measures

Overview

The Master Drainage Plan for this reach of the Joe Creek identifies the most cost-effective structural solutions (channel improvements, enlarged inlets and storm

sewers, stormwater detention ponds) for the area. The Non-Structural Plan identifies buildings where a structural solution is not cost-effective, and acquisition is the recommended solution. There are presently no funded Capital Improvement Projects for future flood control projects in this area. The *Joe Creek Master Drainage Plan* is in the process of being updated, and additional structural and non-structural solutions may be identified.

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 (918) 596-7777, or go online to www.cityoftulsa.org/connect/contact-the-city.

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 is 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.

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 residences 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 (918) 596-2100.This may be the most feasible solution for areas with flooding due to overland flow, as in RLA #22.

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.

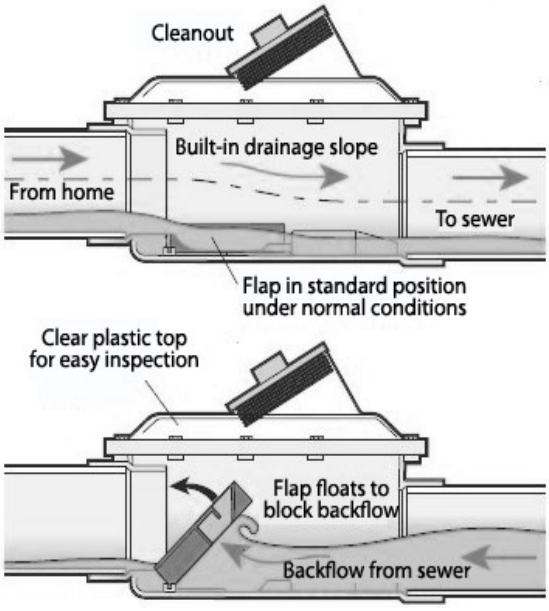
Acquisition. The City of Tulsa has a repetitive loss acquisition program to purchase repeatedly flooded properties. This voluntary program offers owners who are in this situation have a way out. The City applies to FEMA for funds using the Hazard Mitigation Grant Program. Once the grant is awarded, the 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 (918) 596-7777.

Acquisition is usually not feasible or cost effective for areas of shallow flooding, as in RLA #22. 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 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 homes in RLA #22 is a candidate for elevation.

Dry Floodproof Your Structure. This can include actions that seal a structure and prevent floodwaters 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 sanitary 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 flood-proofing 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..



Sewer backflow prevention valves are essential components for homes in low-lying, flood-prone areas.

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, elevate, or otherwise protect items that can be damaged from flooding.

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.

Correct Sanitary Sewer Backup Problems. Sanitary sewer backup can be a cause of home damage in low-lying, flood-prone areas like RLA #16. The installation of backflow prevention valves on your sanitary sewer lines is highly recommended.

Maintain Nearby Streams, Ditches, and Storm Drains. Local flooding can often be caused by brush and other debris blocking drainage ways and culverts. Channel blocking by limbs, grass cuttings and other debris in the largely natural course of Little Joe Creek through RLA #22 and immediately downstream could contribute to future flooding. The channel must be regularly inspected and kept free of blockage. . 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.

Purchase and Maintain Flood Insurance. Flood Insurance is available for all properties in Tulsa, and is especially recommended for properties in flood-prone areas. Flood insurance for structures and contents is recommended, whether or not they are in a floodway or SFHA. Thirty percent of all flood insurance claims are for properties that are outside the FEMA floodplain. Because of the City of Tulsa's sustained efforts to reduce flooding, residents are entitled to a discount on flood insurance. A property does not have to be in a floodplain to qualify for flood insurance.

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 flood 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 RLA #22.

- Extend and/or improve the storm sewer system to better collect storm water runoff.
- Improve roadside ditches and drainage structures to improve drainage..
- Construct upstream detention to reduce storm water runoff into the RLA.

VI. Funding

Due to the nature of the flooding problems and the damages involved in RLA #22, the funding of needed improvements will have to be borne by the individual homeowner. 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 in this RLA is dependent of several factors, including the prioritized ranking of the project with other Capital Improvement projects, inclusion in future street maintenance projects, being part of a Bond Issue project, etc. The City will increase the storm sewer capacity with any future street projects in the area. 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.

VII. Conclusions and Recommendations

Due to the improved channel of Little Joe Creek from Sheridan Avenue west to the Arkansas River, overbank flooding along much of the stream is no longer a major problem. Little Joe Creek remains in a largely natural condition immediately up and down stream from RLA #22. While overbank flooding does not appear to have been a major problem in this reach of the creek, there has been some local flooding due to clogged culverts, storm sewer backup, street flooding and overland flow. As a result, some properties, particularly those with slab-on-grade foundations, have been exposed to water damage in the generally level terrain. All four properties in RLA #22 are either within or touched by the City's Regulatory Floodplain, in an area of shallow flooding. Expansion of the storm sewer network in this area during the 1990s has eliminated the sewer backup and street flooding that used to occur after heavy rains. The culvert that carries Little Joe Creek under E. 58th St. has also been enlarged and four new storm sewers installed just east of the creek—one of them directly in front of the local Repetitive Loss Property. Nevertheless, low-lying areas along the channel remain subject to potential site flooding from overland flow and local landscaping. Homeowners are encouraged to keep the creek and culvert free of debris and maintain flood insurance on both their structures and contents.

Homeowners are encouraged to maintain flood insurance. The City of Tulsa is a Community Rating System (CRS) Class II Community, and all homeowners qualify for up to a 40% 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.